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Applying Baked Color Finishes to Metal Surfaces

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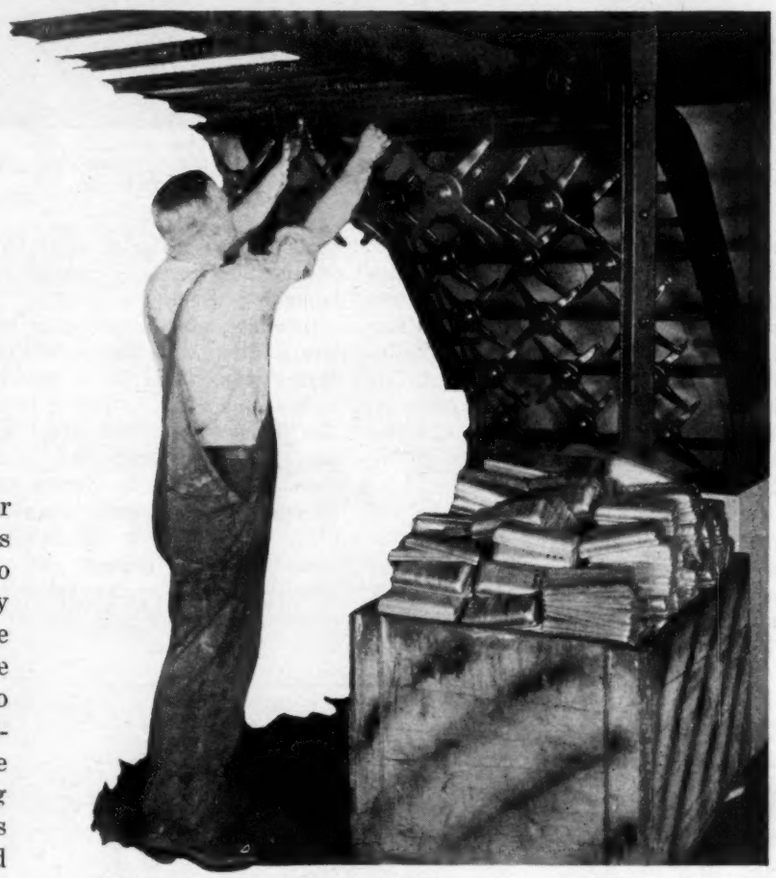


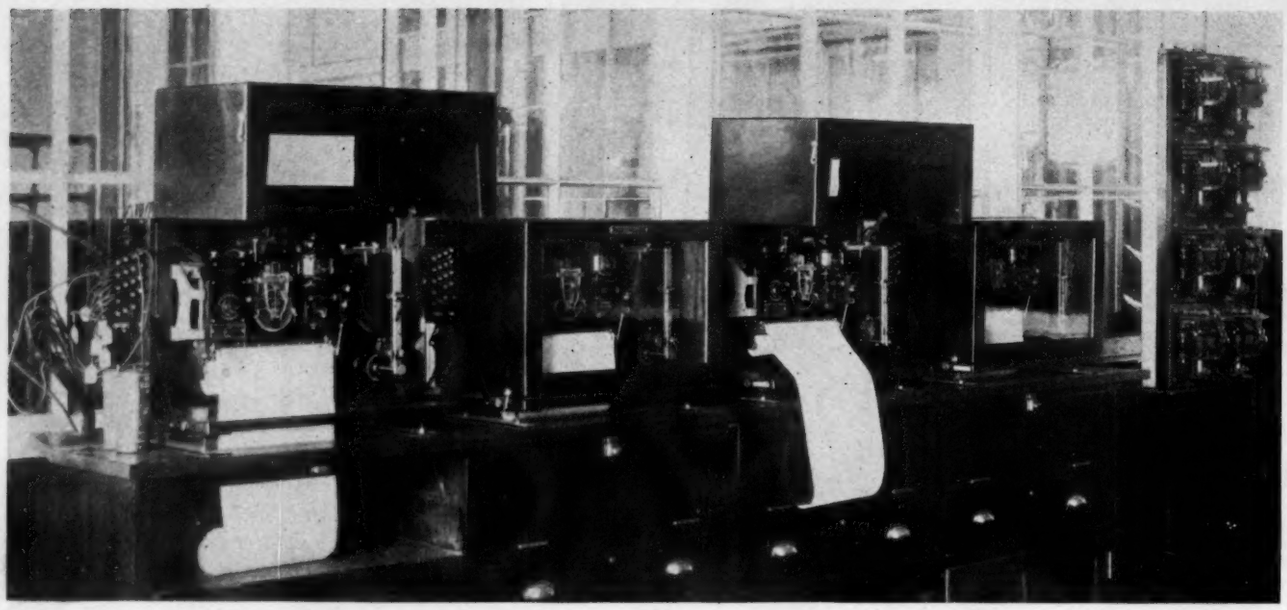
Placing steering wheel spiders on an overhead continuous conveyor which carries them through coating treatments

TO KNOW when, where and under what conditions baked finishes may be used, it is necessary to know first just what they are and why they are used. Perhaps never has more confusion existed in the minds of those interested in finishes than over these two particular terms—japanning and enameling. The fault is due primarily to the men who, in the early days, were making a living out of applying baked finishes and their attempt to guard their so-called secrets. However, modern production demands have changed all this and uncovered these secrets.

Distinguishing between japanning and enameling, japanning is a baked finish which applies to black only, while enameling is the term used to describe baked colored finishes. An illustration of some of the confusion which exists lies in the term enameling as used to describe fired porcelain enameling, such as used on bath tubs, kitchen tables, and the like, which is vitreous enameling, a clay baked on steel or iron, becoming glassy and hard.

Some years ago one of the larger automobile manufacturers spent a great deal of money in advertising and popularizing "black enameled finish." Correctly this should have been termed a "baked japan finish." However, at the time, tinware having japanned finishes was being sold in hardware stores and no doubt the manufacturer wished to prove to his automobile prospects that he had something in the way of a finish to offer that was better than that applied to ordinary cheap tinware.

No coating material just like japan in its make-up has been found. Its application could be defined as a process of applying a mineral coating to metals—a coating that deteriorates less with age than any other known material applied in a liquid form. It resembles paint in appearance and is often erroneously called paint; yet, it is



Control room in a large japanning plant. Recording pyrometers carefully and automatically regulate oven temperatures

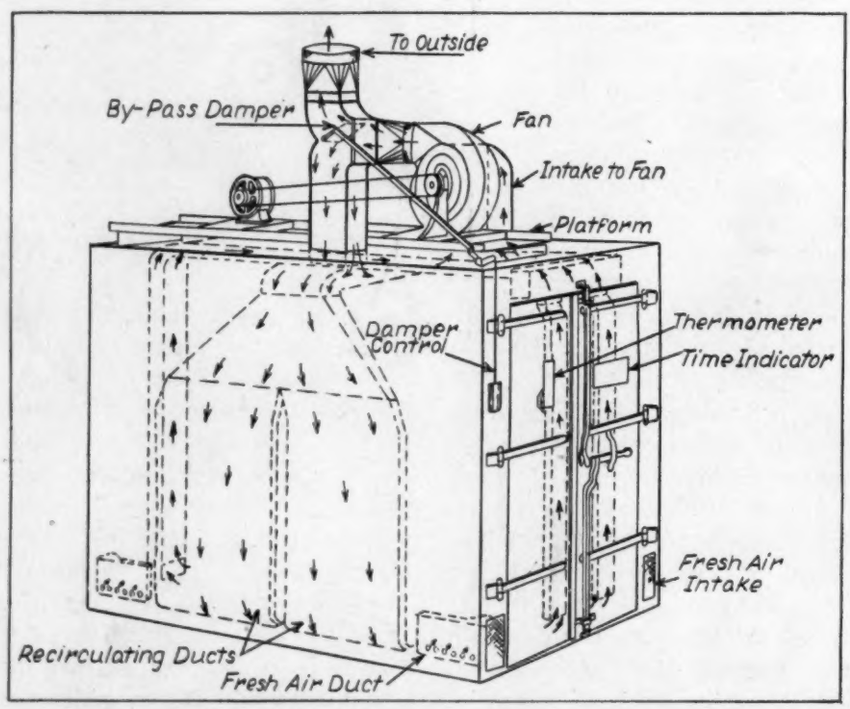
as unlike paint as water is unlike oil.

Paint is made up of pigments which give it color, a drying oil which gives it life and a reducer which conditions it for use, that it may be applied readily. The life of the paint film rests with the life of the drying oil; when the life of the oil is ended the paint disintegrates, falls off or chips, and that is the end.

With baking japans conditions are quite different. It so happens that the formulas of paint and japan are similar. The same drying oils are used in both kinds of materials. However, no dryer is used in japan, a japanning oven being used in its stead. Also the pigment is entirely different since it is not affected by heat under 600 degrees Fahr. This pigment is a member of the asphalt family. In short, the japanning process consists of coating mineral —a mineral called gilsonite —to the surface of the metal article that is being finished. Japan always is applied to metal parts as the material must be baked on the surface in a special type of japanning oven.

Gilsonite has the property of going into solution with linseed oil, or other drying oils, when it is heated to a high temperature. Once it is in solution it stays in that state until it has passed through the japanning oven. Therefore, to clarify the definitions of paint and japan without going into detail, it should be understood that, in general, all finishes which air dry, or dry below 325 degrees Fahr., are paints. All those containing drying oils, which must be dried at a temperature which exceeds 325 degrees Fahr., are classified as baking japans and must be baked on.

Examples of articles to which japanned finish are applied are black automobile fenders, adding machines, typewriters, sewing machines, etc. It is an inexpensive finish from the standpoint of cost of material and cost of production, and when properly applied is more durable than other finishes, not excepting nickel plating, pyroxylin lacquer or spar varnish. Parts to be japanned are sprayed with the japanning material, after which they are ready to be dried in the japanning oven as fast as they can be handled properly by the equipment available. When the oven doors are closed the oil in the japanning material immediately starts to oxidize and finally passes off through the flues of the oven. When a paint dries it also oxidizes, that is, the drying oil in it



Diagrammatic sketch of a japanning oven showing air circulation system

PAINT JOBS
JOIN TIGHTER

oxidizes. This means that it does not dry by evaporation but by a chemical process in which the oxygen is taken up by the coating material as it gradually dries. When japanned parts are placed in a japanning oven and the burners are lighted a transformation from wet to dry takes place in a short time,often as quickly as 4 hours; if equipment and conditions are favorable this time can be reduced to 15 minutes.

This short-time drying may appear to be a revelation. Yet an instance has been cited of a load of automobile bumper bars received from the forge shop, tumbled to remove the scale, and taken into the japanning shop at 9 a.m. They were completely finished and dried and on the way back to the customer by 11 a.m., 2 hours' time. Incidentally, it should be remarked that the finish was a typical black finish as applied to bumper bars.

Hazards Are Overcome

Much has been learned about the japanning process in 12 years and today there is little excuse for fires such as have been experienced in japan shops or finishing rooms for a cure has been worked out for every type of hazard. The result is that the number of fires has been reduced and those which do happen are found to occur in equipment which is antiquated or which does not contain modern improvements.

In this connection it is interesting to note that some of the most serious fires have occurred in the last 12 years, not due to japanning, but to the use of pyroxylin lacquer. In other words, far more ignorance is evidenced in the use of this modern finishing lacquer than ever has appeared in connection with japanning materials.

The manufacture of japanning equipment has grown through necessity into one of the country's largest industries. In the handling of parts alone much progress has been made. Formerly it was the custom for workmen to walk in and out of the oven, carrying parts on supporting rods and hooks. This meant a great loss in labor which later was saved when manufacturers saw the wisdom of spending more money for efficient oven installations and conveyors.

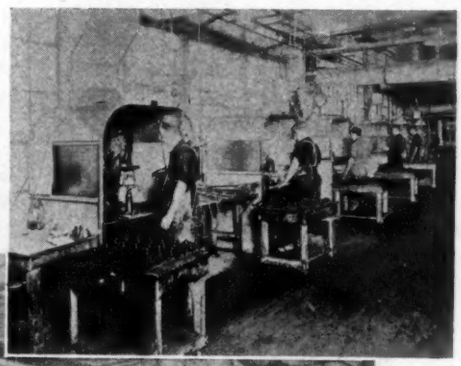
For example, in an accompanying illustration is shown a view taken in a large automobile plant. Here is shown the automatic dipping of rear fenders, hung on a continuous conveyor. These fenders never are touched by human hands from the time they are hung on the conveyor, when they automatically receive the first coat, until they have received the second coat, the finish bake and the fenders are ready to be assembled on the cars.

The various steps in this continuous operation after the parts are hung on the conveyor are: A first coat, dipping in rubber japan, which is a coating material conditioned to adhere strongly to metal surfaces; the baking of this first coat, which takes place as the parts are slowly moved through a long tunnel oven; the second coating operation as the parts are carried down into a V-shaped dip tank containing the glassy dipping material; and finally, the second baking operation which prepares the parts for immediate use or shipment to the customer the moment they come out of the exit end of the oven from the last bake.

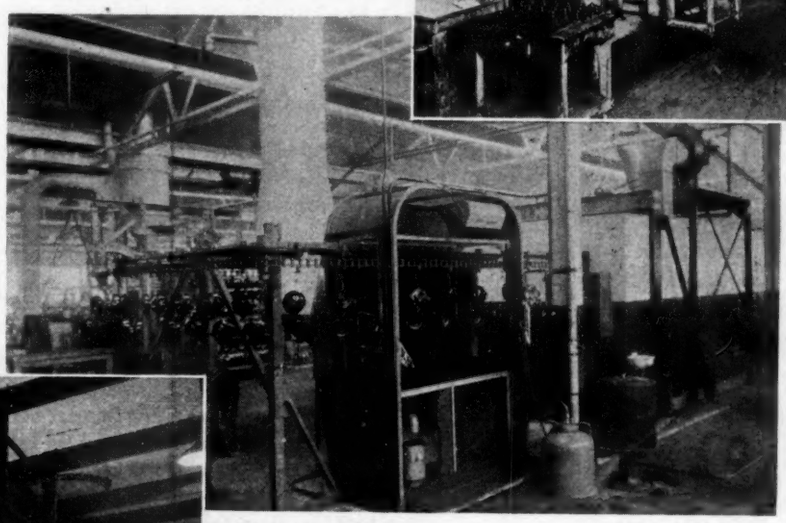
Handling Methods Differ

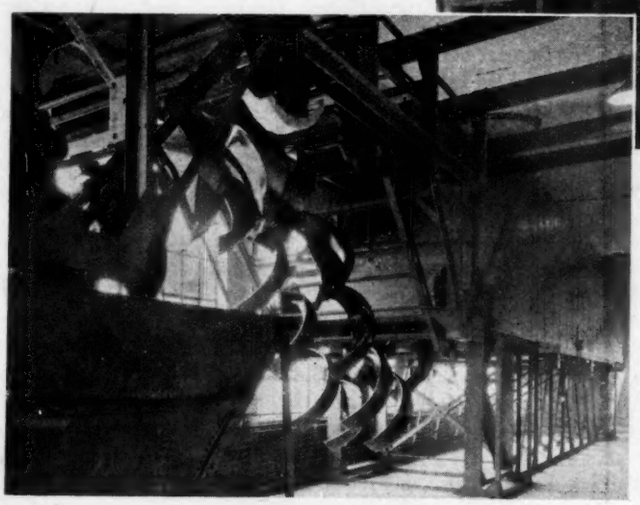
Thousands of other parts are finished by this same process and the methods of application required to overcome all the various technical points raised to meet manufacturing conditions are numerous. The principal methods of application, aside from dipping, are brushing and spraying. In the case of electric motor parts, for example, where it is most important to cover only the outside of the end covers and the motor housing, the spraying process is used. An accompanying illustration shows six spray operators handling the production of the parts turned out by a prominent electrical manufacturer.

On the other hand, a still larger motor manufacturer uses the conveyor idea of handling spray-coated parts, also shown in an accompanying illustration. This method greatly reduces



ILLUSTRATING two methods of handling spray-coated parts. (Right) Six spray operators handling motor parts to and from spray booths. (Below) Conveyor system which carries parts through spray booth and into baking oven





AUTOMATIC dipping of rear fenders (left), hung on a continuous conveyor which carries them through first and second japanning applications and the final baking

the cost of handling. In this system a helper simply loads the parts to be finished on the conveyor at the loading station and in due course these parts reach the spray booth where they are coated as they pass in front of the operator and finally pass into the oven for baking. One spray operator thus is able to keep a large oven completely filled with the parts in process.

When the parts are completely baked the single chain conveyor carries them out of the oven to the helper who takes off the finished part and hangs on an unfinished one. And so the process goes on continuously, producing clean and uniformly finished parts.

Oven Controls Required

Large production plants where thousands of parts are handled hourly require various forms of control apparatus to control and record every change that takes place. Such a control room and equipment are shown in an accompanying illustration.

In the illustration on the first page of this article the workman is shown handling steel spiders for automobile steering wheels on an overhead continuous conveyor. The parts are carried through a burn-off oven which removes the oil and grease preparatory to the dipping application of the baking primer, which is used as a rust-proofing material and which later is sanded on the exposed, or upper side of the spider. The sanding is a hand-finishing operation which is performed for the purpose of preparing the surface for either the lacquer or baking enamel finishes in colors.

Japanning ovens are, generally speaking, heated by three methods: Natural or artificial gas; oil burners; and electric heaters. Local conditions govern entirely the choice of the method of heating. Oven equipment manufacturers are prepared to adjust and to fit their products into any and all special conditions which arise. Incidentally, their scope has been extended to the foundry where the baking of cores is handled in much the same way as the baking of japanned finishes on metal parts.

This baking process of finishing is confined largely to iron and steel in their various forms and shapes. In the case of cast iron, it becomes necessary to use a baking iron filler which has the property of filling the surface roughness made by the molding operation. The filler coat in turn may be sanded to a smooth or a semi-smooth surface by hand or machine before finishing coats are applied.

Occasions arise where brass and aluminum are finished to harmonize with other parts which have been japanned or enameled. Attempts have been made to apply a baking finish over galvanized iron and this is perfectly feasible providing foresight is used in preparing the metal to receive and hold the baking material.

Due to the peculiar property of baking japan in following the contour of the surface, when it is used as a finish, it is not possible to use a rough finished grade of sheet steel in making up products of manufacture. The finish will not come out with a perfectly smooth surface. In other words, the finish will not flow into the depressions and fill them up. Therefore, it becomes necessary for the manufacturer to use a good grade of sheet steel when finishes are to be applied if he expects to get smooth and uniform appearance.

Sometimes a manufacturer may save some money in the material which goes into his product by using a grade of sheet steel which has the qualifications he desires and which is not as highly finished at the steel mill as some other grades and will serve just as well. Of course, the manufacturer is the best judge of the grade of finish he wants to have on his products.

Colored baking enamels are cheaper and cover much better than lacquer finishes. It might be taken as a general rule that lacquer covers about 200 square feet per gallon while colored baking enamel covers about 400 square feet per gallon. Since the price of lacquer is considerably more than that of baking enamel, an important saving is possible where conditions warrant a change to the baking enamel.

It is impossible to apply satisfactorily baked finishes to surfaces that are not chemically clean. They may adhere in spots, but eventually difficulties will be encountered.

Special Finishes Devised

Some special finishes have been developed and have become popular for the finishing of castings and sheet steel parts that have not been given treatments such as grinding, polishing and sanding to prepare them for coating. An example is crystal japan, also popularly but erroneously called crystallizing lacquer. Crystal japan has an important place in the finishing of rough surfaces, even on ordinary iron castings, because of its "alligatoring" effect which creates an optical illusion of a perfectly smooth surface which in reality is quite rough. Crystal japan provides an inexpensive finish for all types of work and has found wide use in the finishing of scientific instruments. The japan has almost the same formula as that of baking japan mentioned in this article, with the exception that the mineral pigment, gilsonite, is omitted.

The drying oil is raw China wood oil which possesses the peculiar property of "alligatoring." The finish may be baked hard, or it may be air-dried, but if it is not baked it is scratched easily and does not have the physical properties of a baked finish.

Recognizes Metalworking Industry by Radio

The metalworking industry received recognition on March 25 in the series of radio salute programs sponsored by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Over a coast-to-coast network of stations, Ernest F. DuBrul, general manager, National Machine Tool Builders' association, Cincinnati, was the principal speaker and he emphasized the position machine tool builders have assumed among all modern industries. Mr. DuBrul stated that the modern age is pre-eminently a Machine Age. A portion of Mr. DuBrul's address was as follows:

"The industrial machinery industry of this country comprises about 10,000 establishments, and employs about 500,000 wage earners. And the builders of these machines use machine tools to form the metal parts of all of these other machines. So do the producers of all consumer goods into which metal enters, from automobiles to zithers.

"The machine tool industry is but a small one indeed measured either by the number of establishments, the number of persons employed or the value of product sold. Altogether there are only about 350 companies in the American machine tool industry. Not one of them employs as many as 3000 people in machine tool production. Altogether they employ only about 35,000 wage earners, an average of only about 100 per company. The value of all machine tools sold the world over in a good year will scarcely reach 300 million dollars, less than a fourth of the values sold by one large American automobile company. Yet, this quite small industry is the key industry of modern civilization."

The lake freighter, JOHN W. GATES of the Pittsburgh Steamship Co. fleet, damaged by fire at the Lorain, O., docks of National Tube Co. March 21, is being repaired for re-entry into service by the opening of navigation.

Iron and Steel Industry Looking Forward to Healthy Future

Aggressive Research and Development, Anticipation of Market Changes and Adherence to Sound Business Practice Will Insure Position

By Dr. Zay Jeffries

Consulting Metallurgist, Aluminum Co. of America

DURING less than 60 years, annual production of pig iron in the United States has increased more than 23 times. Such a rate of growth may seem small when compared with that of the automotive industry which has increased 100 times in the last 20 years, or when compared with the growth of other industries of recent birth. The comparison appears less unfavorable, however, when the fact is taken into consideration that the iron and steel industry has existed on the earth in some form for thousands of years.

What Industry Includes

The American iron and steel industry involves the utilization of about 900,000 people, the payment of $1,400,000,000 in annual wages and salaries, the investment of $14,000,000,000, the mining annually of 70,000,000 tons of iron ore, 15,000,000 tons of limestone, and 120,000,000 tons of coal. It results in the production of 40,000,000 long tons of pig iron and 50,000,000 long tons of steel ingots. In addition, the industry includes ownership and operation of railroads and steamship lines, the production of cement, timber, coke, gas, by-products, and many other activities.

The leading part played by the iron and steel industry in promoting the confidence of the public in corporations and corporate management is well known. The industry has also provided worthy examples of vertical integration and mass production. The social activities within the industry have been no small factor in promoting the fuller development and greater happiness of the American working man and his family.

The past has been necessary, interesting and romatic and the successes and failures provide a solid foundation for continued building. No matter with what satisfaction the past can be viewed, however, it is the potentiality or future which gives us most concern.

At the outset it can be stated with certainty that there is ample iron in the earth's crust for all possible future needs. The earth's crust contains about 5 per cent iron. It is only natural that ores geographically accessible, rich in iron, relatively free from objectionable impurities and which can be mined cheaply will be used as long as they last. There are in North America sufficient reserves meeting these requirements to last another generation and when these more desirable ores are depleted there are available unlimited quantities of lower grade deposits. There is no danger of exhausting the limestone supply, and coal reserves are sufficient to last many generations. The richer and more extensive deposits of manganese ores are not in the United States or Canada but there is little danger of a world shortage of this element. It can therefore be definitely concluded that the supply of raw materials will not limit the growth of the American iron and steel industry.

Steel Industry's Need Is More Research

THE American iron and steel industry needs more research and development work to overcome the error of omission in the past and to provide aggressive and intelligent exploitation of iron and steel and their alloys in the future. This was the opinion expressed by Dr. Zay Jeffries in presenting the Henry Marion Howe memorial lecture at the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, Feb. 17-20. Dr. Jeffries' interesting and pertinent observations on the future of the iron and steel industry are presented on the accompanying pages. He sights no factors outside the industry which will seriously threaten growth and, assuming reasonable compliance with certain conditions, it would appear that America's major industry can look forward to not only a healthy but a romantic future. Dr. Jeffries is a consulting metallurgist, Cleveland.

Nonferrous Output Increases

The predominating position of iron in the metal industry is shown in Fig. 1. Of the new metal produced in the world, pig iron represents about 94 per cent. The nonferrous metal production is represented on a scale 20 times that of pig iron for the purpose of comparison. Manganese and chromium are not included in the nonferrous metals production, but nickel is. It will be seen that the total of nonferrous metals has increased relative to pig iron during the last 10 years and change in this direction may be more. A compensating factor, however, is the replacement of nonferrous metals for some uses with the newer stainless irons and steels.

The three principal nonferrous metals are copper, zinc, and lead. Because of the inexhaustibility of iron in the earth's crust, the great fitness of iron and its alloys for man's needs, the higher cost and limited quantities of the chief nonferrous metals,

the high cost and for many purposes, lack of fitness of aluminum and magnesium, it would seem to be a safe conclusion that in 20 years the iron production of the world will be at least 10 times that of all nonferrous metals combined.

Although the various metals are competing with one another for certain applications, one metal may be clearly superior for other uses. For example, aluminum competes with cast iron for internal combustion motor pistons but steel has no competition for rails. Each metal has gained its present position against severe competition. Each has such a variety of uses that a condition of substantial temporary stability obtains. Each metal supplies certain needs more economically than any other and by so doing helps to perfect our industrial machinery and to promote continued expansion in many directions. Copper has been indispensible to the electrical industry, yet the gain in iron production as the direct result of the judicious use of copper has been even greater in tons than the whole of the copper production. In a similar manner we should regard all of the materials, whether metallic or nonmetallic, organic or inorganic, as co-operating toward a sounder economic structure.

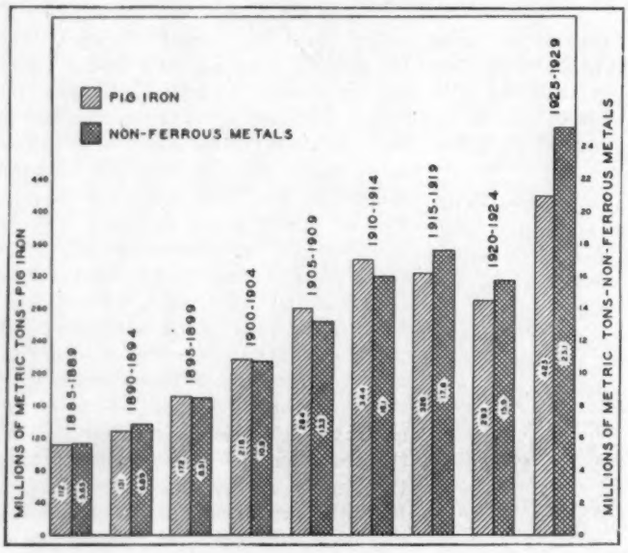


FIG. 1—World production of pig iron and nonferrous metals since 1885

Production Advances Rapidly

One of the nonmetallic competitors of iron and steel is concrete, which has in recent years substituted for steel in many places. The relative rates of growth of the United States iron and portland cement industries are given in Fig. 2. For comparison, the rate of increase of population is also charted. Since 1885 the population has increased about 2.1 times. The pig iron production has increased from about 4,000,000 to about 40,000,000 gross tons annually from 1885 to 1929 and the output of portland cement in the same period has increased from about 30,000 to 30,000,000 gross tons annually. Thus the iron production has increased about 5 times as fast as the population and the portland cement production about 100 times as fast as iron. In fact, there are more cubic feet of cement produced in the United States now than of iron and a greater tonnage of concrete is poured annually than of pig iron.

Yet I am inclined to believe that there are more tons of pig iron produced currently than there would be if we had no cement or concrete. The steel which concrete has replaced in certain types of construction is probably made up by added consumption in the automotive industry alone, as a result of the superior fitness of concrete in road construction. Furthermore, each of us is able to have more because of the cement industry and this makes us better customers, directly and indirectly, for iron products. Concrete and other nonmetallic materials like lumber and clay products have been competing with iron for many years and there seems no possibility of substitution for many important applications. But if one important material, in part competitive, like cement, can grow 100 times faster than the iron industry and the latter still show healthy and relatively rapid growth, it seems unlikely that the continued growth will be prevented by anything which may happen in the nonmetallic materials industry.

While it would thus appear that the iron and steel industry is basically well fortified against competition from either metallic or nonmetallic materials, there are some factors which need careful consideration. In the first place, research and development in the iron and steel industry should keep pace with similar activities in other industries. It is perhaps not wise to put too much effort in attempting to apply iron and steel in places where other materials seem clearly better suited. On the other hand, it is the problem of the iron and steel industry to ascertain the applications where iron or iron alloys can serve most economically. There is no way to accomplish this save by aggressive research and development.

Cites Recent Developments

Americans can be proud of their past achievements in the direction of labor-saving devices and in general of the mechanical engineering of the industry from ore to finished product. Recent developments like the 1000-ton blast furnace, the welding of tubular products, continuous sheet rolling, stretch rolling, and the manufacture of coiled strip tin plate bear evidence that this work is not now being neglected. There is, however, much to be done in the future along these lines and continued activity in this field is necessary to keep the iron and steel industry in a healthy condition.

Many of the new metallurgical developments are coming to us from abroad. In recent years the stainless steels, the nitriding process and nitriding steels, and Izett steel have had their major developments from the research angle, in Europe, I suspect this is in part the result of the cumulative effect of research carried out over a long period of time. But I think we may conclude that in the field of metallurgical research, the American iron and steel industry, even though it may not have been as active as might have been desired in the past, faces the future with bright prospects.

But in spite of anything research, management, or salesmanship can accomplish, we may expect changes which will affect the iron and steel industry for better or for worse. The industry should try insofar as is possible to anticipate the effect of potential changes and to accommodate itself to them.

Many possible changes could be mentioned representing potentialities of things already known and certainly there will be a continuous flow of new ideas. New ideas can be expected in somewhat increasing numbers because of the cumulative effect of the training and experience of a

constantly increasing research group. New ideas should, however, be still further stimulated because of the solid foundation of science on which to build. Because of the many advantages of iron and steel, I should expect this industry on the average to benefit from the developments which are to come. The growth of the industry may be faster in dollars than in tons, however, because of the ever increasing demands for quality and for combinations of properties best provided in alloy steels. According to Cone, in 1909 in the United States only 1 ton of alloy steel for each 131.6 tons of total steel was made, whereas in 1928 there was 1 ton of alloy steel produced for each 16 tons total. We may, I think, expect the proportion of alloy steel to still further increase in the future.

The iron and steel industry has much yet to do in standardization and simplification. The accomplishments of the past 15 years in this direction have been great and the industry is more healthy as a result. One large steel company in the United States is working to 45,000 specifications. Other companies are proportionately burdened. Some of these specifications differ in such minute detail that it seems certain that the number could be greatly reduced with resulting over-all economy. Perhaps the American Standards association can do much to help in future standardization but to achieve the proper results the customers and manufacturers must co-operate toward this end.

Depends on General Business

It is now well known that the iron and steel business is good when and only when business generally is good. The first requisite for a healthy future of the iron and steel industry is therefore a healthy general business. It should be the object of the iron and steel industry to try to promote general business health.

We have watched the vicious cycle of decreased sales, unemployment, reduction of buying power, still further decreased sales, still more unemployment, and so on, proceed with the idea that such a cycle is normal. Furthermore, we have watched the conditions leading to this vicious cycle with a feeling that they were uncontrollable. Now, under the leadership of President Hoover, supported and assisted by some of our greatest industrialists and economists, it is positively asserted that business depressions need not be so deep nor so long; that the business depression is not a disease, mysteriously contracted and which must run its course, but the symptoms are evident in advance and preventatives can be used effectively. This is one of the most encouraging indications in the future outlook for all industry including iron and steel.

Notwithstanding the past depression and peak business cycles, business as a whole has shown an average growth greater than that of the population. It is desirable to have this rate of growth continued or increased. Growth calls for extra construction and equipment to provide for the increased production and this permits us to add currently to our reserves of real wealth. Should the general business activity decline, the expansion activities would cease and industry would lose more than in proportion to the actual decline of goods produced for current consumption.

Economists have partially analyzed conditions for business health and they have enumerated a number of potential depression symptoms. We can be assured, for example, that our money and credit must be wisely controlled and that our Federal Reserve system is the most effective financial stabilizer so far devised in the United States. We are warned, however, that money is not wealth but under a sound money system it can be exchanged for real wealth. International trade giving rise to imports and exports makes it necessary to determine the rates of exchange of our money for that of other nations. Our workmen must compete against workmen in all parts of the world. We have established a rather high standard of living, that is, a standard which consumes a large amount of commodities per capita. As one means of helping to maintain this high living standard, we impose a duty or tariff on certain imported goods which in part is intended to protect our workmen from the competition of those in other countries living under lower standards. The tariff is also an aid to mass production which in turn is conductive to the effective use of labor-saving devices and hence makes possible manufacturing costs so low that we can compete with other nations in many foreign markets. Thus the extent of our exports is one of the business health factors. We are urged, therefore, to think internationally.

Excess Production Important

The matter of surplus production is also important. In the agricultural industry production is not subjected to exact control and consequently a grave problem in handling surpluses is forced upon us. It is hoped that the Federal Farm board will so handle this situation as to minimize the evils. But the iron and steel industry can avoid any substantial surplus production and should, for its own good as well as for that of business in general, do so.

It appears that the two chief essentials for business health are (1) opportunity for individuals to function and (2) the determination of proper rewards for services.

With reference to the individual's opportunity to function, we have been told so often of the depressing effect on the workers of our machine age and mass production that it may seem strange to conclude that conditions were never better any place or at any time for the individual's development than now in the United States. We are told that we are no longer developing mechanics as in the good old days. Why worry about developing mechanics when our present system turns out instruments and machines in countless numbers with

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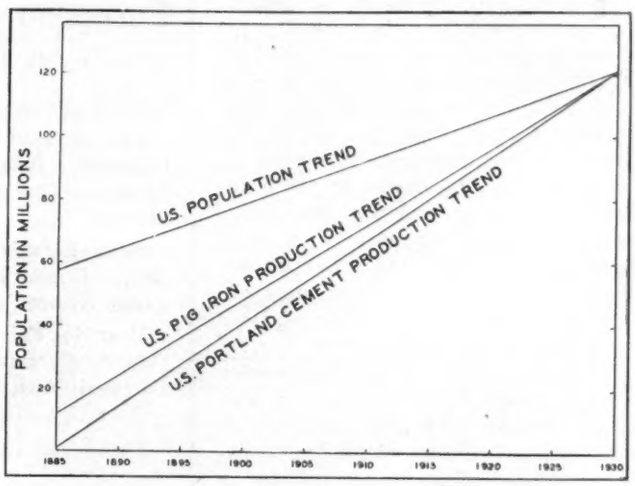


FIG 2—Average production trends of pig iron and portland cement in the United States. Pig iron increased from about 4,000,000 *tons in* 1885 *to* 40,000,000 *tons in* 1929, *and portland cement from about* 30,000 *tons* in 1885 to 30,000,000 *tons in* 1929

Uncertain Factors Defer Progress In European Steel Industry

Formation of Selling Syndicates and Political Movements Hamper Free Movement of Trade—Output Is Not Suffering

By Vincent Delport

European Manager, Iron Trade Review

THREE months have elapsed since the year and a new decade began, but business progress in the greater part of Europe appears to have come to a standstill, and any signs of imminent improvement still are indefinite. The simultaneous development of a number of important factors bearing on the economic situation is somewhat impressive, and goes far to explain why, in more countries than one, industrial leaders and consumers are in some cases deliberately stemming the tide of their own impulses to produce or to buy.

Continental iron and steel industries are awaiting the outcome of negotiations relating to the organization of international selling syndicates. Current export business is limited, owing to unstable and difficult financial conditions in several foreign markets. In Great Britain uncertainty prevails and will reign until the intentions of the chancellor of the exchequer with regard to existing safeguarding and MacKenna duties are known; the budget, due next April, is expected to bear more heavily, instead of more lightly, upon trade, and the sudden formation of a new politico-economic party further confuses the situation.

Tariff Truce Ineffective

The occurrence in France, in the space of a week, of two successive cabinet crises, in addition to the unavoidable retarding effect on domestic business has caused the already feeble tariff truce conference at Geneva to be still-born. However, business conditions over a wide expanse cannot remain stationary for long, and there are reasons to believe that, on the continent at any rate, a spurt forward soon will be forthcoming. The general advent of cheaper money is particularly encouraging.

Before reviewing briefly the domestic factors immediately influencing industrial and trade activities in Great Britain, one must not overlook the fact that the country depends largely upon exports for its welfare. Unfortunately, the Wall Street collapse has had widespread consequences, which may affect Britain's best customers for some time. There are unmistakable signs that demand from world markets has contracted. Here again, this factor coincides with internal difficulties, with a resultant slackening of activities.

European Business on Lower Basis

Good—Holland, Switzerland.

Fair to Good—Norway, Sweden, Denmark, Belgium, Luxemburg, France, Czechoslovakia, Yugo-Slavia.

Fair—Estonia, Lithuania, Spain, Italy, Hungary, Rumania, Bulgaria, Greece.

Poor to Fair—Finland, Latvia, Poland, Germany, Great Britain, Portugal, Austria, Albania.

Poor—Turkey.

Undetermined—Russia.

Steel Output Increases

Compared with the first two months of 1929, the output of coal, pig iron and steel this year has increased. Exports of coal in January this year, at 5,493,410 tons, were one million tons in excess of the figures of a year ago. It is of considerable interest to note that gradual but real progress was being made in the coal industry during the past year, both in production and export trade. It is feared that the proposed legislation, now causing a serious parliamentary battle, will again disorganize this industry and check progress. It is a burning question. Already the labor government has modified the bill proposed originally, in order to obtain the support of the liberals, but these are not yet satisfied, and a dissolution, although not probable, is possible. A general election in the near future would only accelerate business depression, and is not desired by anyone in business circles.

While coal exports are increasing, exports of iron and steel are falling off, and imports, compared with the figures of a year ago, are rising. Blast furnaces and steelworks are experiencing lean times, and prices are unsatisfactory. There is, however, a reasuring sign in the growing tendency for large concerns to absorb plant conveniently located, thus bringing about a more economical operation of the industry. The export trade now is in the hands of an association which centralizes orders, and is better able to compete against continental organizations in foreign markets than are individual works. The British Steelworks association, recently set up to stimulate the public in the use of steel, also is an asset which will become more valuable as time passes.

British Business Slack

British business in general is slack. Unemployment exceeds 1,500,000 and is more acute than at this time last year. The total value of visible exports in January was about £10,000,000 ($48,600,000) less than in January, 1929. Shipping freight rates have reached low levels and many ships are coming back to port in ballast, and laying up. The cotton and wool industries continue depressed. Shipyards are active, but working without much profit; heavy chemicals are normally busy. The automobile trade is active, but patchy. The brighter spots are

to be found in this industry, and in general engineering. However, automobile manufacturers dare not provide for expansion of business until they are assured that their industry will continue to be protected. The developments of the coming quarter will be of considerable importance to the future of British trade.

Reference has been made several times in these columns to the part that politics play in French life. It is not the first time in the history of the country that two governments have been overthrown within a week, as was the case at the end of February. On this occasion, however, business circles have not been showing much emotion, as it is believed that the constructive policy laid down by M. Tardieu will not be considerably modified.

French Conditions Favorable

Conditions in the country generally continue to be favorable, although there is a feeling of uneasiness in certain luxury trades and in the tourist trade. Unemployment in France is negligible, and where it does exist it is limited and due to special circumstances, generally local. In the iron, steel and engineering industries, production is, in fact hampered by shortage of labor. During the first weeks of the year, railroad earnings have been higher than during the corresponding period of 1929, and freight car loadings also are gaining.

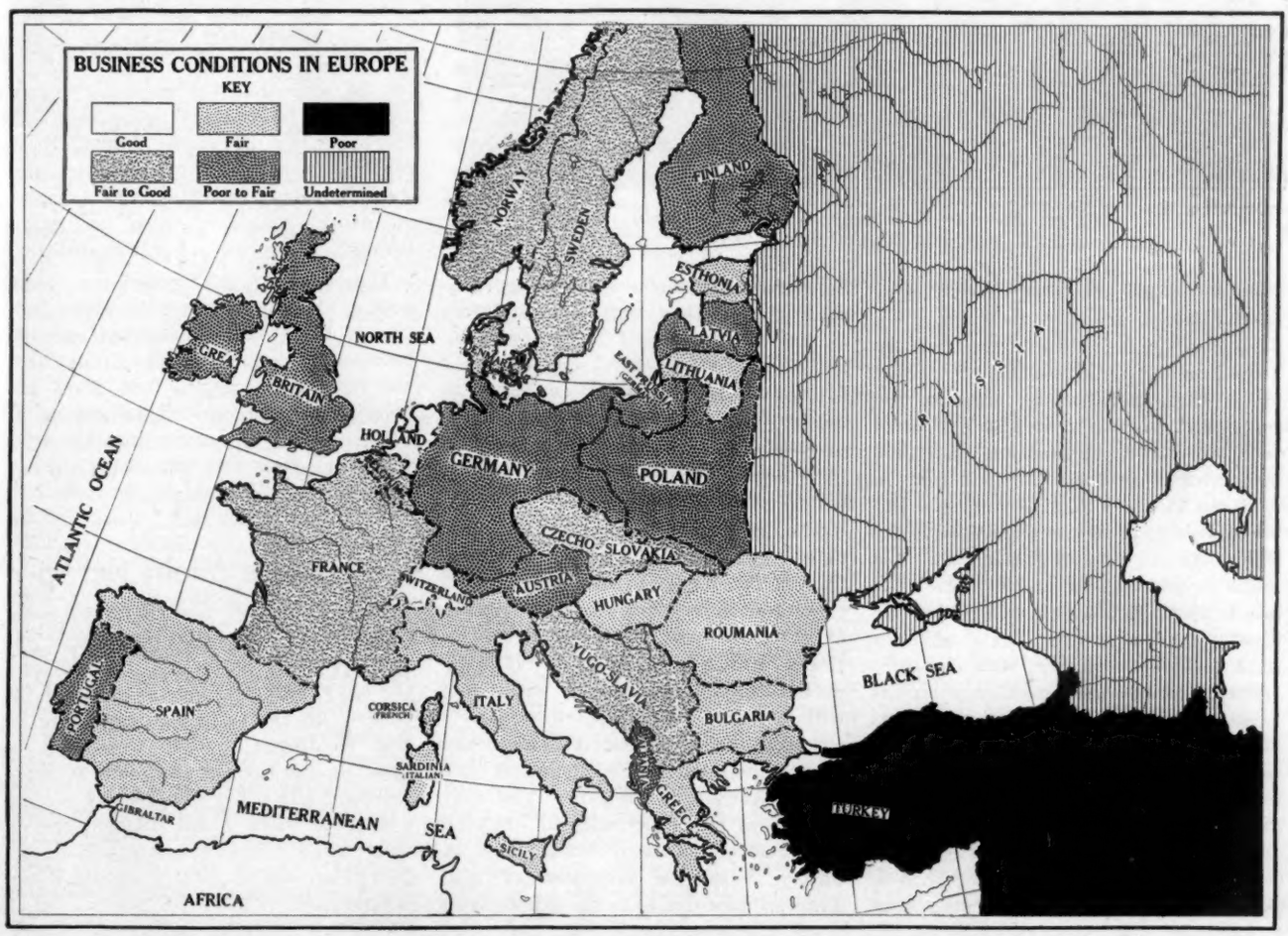
Activity reigns in the iron and steel trades, and the outlook is satisfactory, provided the recession noted in certain other directions does not pursue its course too far, especially as regards the automobile industry. Attention also is directed to the fact that exports, particularly of iron and steel, have fallen off in 1929, while imports have increased. The unfavorable balance of trade exclusive of invisible exports, reached a high level, and there are as yet no signs of a return to a favorable figure. With regard to iron and steel, it is true that French producers did not really concentrate on export business, because conditions were satisfactory at home. However, they are not losing sight of foreign markets, and it is hoped that the organization of international selling syndicates will assist the French exporter and provide him with an assured quota of orders. In the Saar district, which is included in the French customs boundaries, conditions in the iron and steel industry are stationary and generally dull.

In Belgium a certain improvement in business has been registered since it has become known that a national organization, similar to those existing in Germany and France, was being set up in the iron and steel industry. The advance made in the organization of iron and steel sales internationally also has acted as an incentive with respect to export trade. In Luxemburg business has been active, and during the first half of February Luxemburg, French and German producers withdrew from the market for certain products, in favor of the Belgians. This was the first time the international agreement took effect in practice.

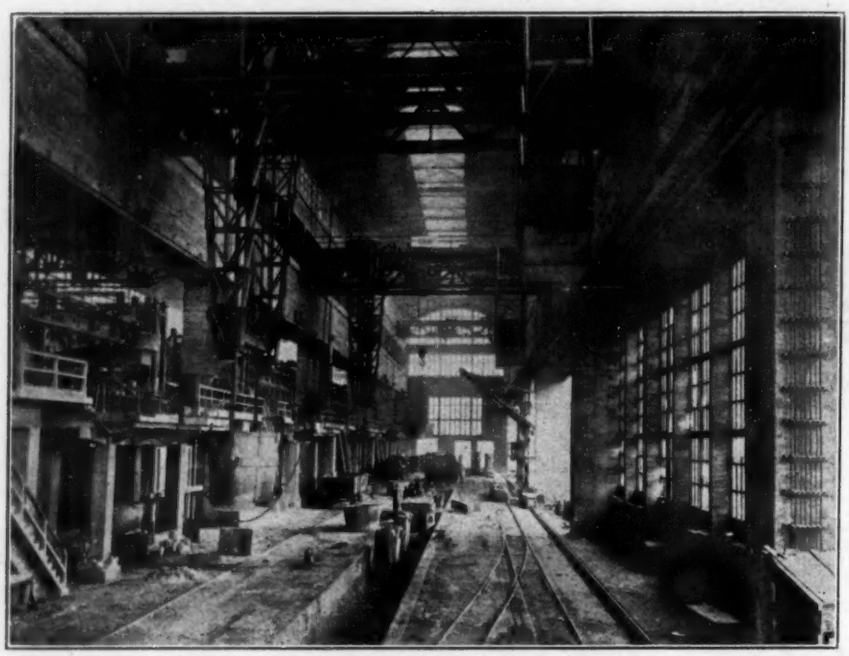
Germany Faces Capital Shortage

Business in Germany continues to be clouded by shortage of capital and tight credit. Dr. Schreiber, Prussian minister of commerce, recently stated that the number of unemployed exceeded 2,200,000. This figure relates to persons receiving full public relief. In addition large numbers are receiving local support and others working short time, so that the actual figure of unemployment is nearer 2,500,000 compared with 2,000,000 at the end of last year. In the Solingen district, an important center of cutlery and hardware, conditions are particularly bad especially as regards home business.

The report for January from the Stahlwerksverband, the association of



steelworks, which includes the various domestic selling syndicates, is to the effect that home trade generally has been quiet, in some cases disappointing, and that export business has been moderate. The present occupation of works is unsatisfactory, and it is not an unusual occurrence for notices for dismissal of workers to be posted up in certain works, or certain departments of large concerns. In the machine industry, only 46 hours a week are being worked on the average. A decrease of orders has been registered for most classes of machinery, with the exception of priming machines, pumps and compressors, and a few specialities. Generally speaking, export business has been better than home trade.



Steel plant of Societe Metallurgique de Normandie, France

Export trade in fact, considerably helped matters in Germany during 1929, when a favorable balance was registered. Exports of iron and steel for the year aggregated 5,813,358 metric tons, against 5,034,833 tons in 1928, an increase of 15.4 per cent. Imports decreased by approximately 500,000 metric tons, or 24.25 per cent. This trend is encouraging and is one of the bright spots of the situation. Iron and steel works now are organized in a highly efficient manner, which enables them to be operated profitably on the present basis of production. Returns for January showed a slight decrease over December for pig iron and an increase for raw steel. Compared with January 1929, the pig iron output was slightly less this year, while that of steel was about 200,000 tons less. It should be remembered that the output of raw steel is at present controlled much more rigidly by the European entente than a year ago. Germany still has some distance to go before reaching prosperous conditions.

Interesting developments are taking place in Italy. In recent public speech, Signor Mussolini, reviewing the difficulties of the past year, pointed out the favorable features of the present situation. The balance of trade is improving, traffic on railroads and in harbors is increasing in volume, unemployment is decreasing, and consumption of electric current is growing. On the other hand, as an aftermath of past difficulties there still is an abnormal number of failures and liquidations in business. The government is assisting trade and industry by the distribution of large contracts: 350 million lira are to be spent on the railroads, 200 million lira on shipyards and public works, and helpful measures are being taken in other directions. The limit to what can be done is set by budget possibilities.

The iron and steel trades remained quiet in January, owing to reorganization of the industry and formation of the consortium. However, a revival is expected for early spring, and occupation of works is fairly good. It is expected the output of raw steel soon will average 180,000 tons a month.

Poland finds it difficult to overcome the unfavorable conditions which prevailed at the end of 1929. The difficulties of the agricultural districts have reacted on many branches of industry, with the exception of coal. Tradespeople have been experiencing hard times, and unemployment has been growing. On the other hand, there has been a marked improvement in the balance of trade. The iron and steel industry also is feeling the effects of this state of affairs, the bright spot being that exports have been improving and partly making up for deficiencies in domestic business. An improvement of the situation is anticipated as the year advances.

Conditions in Czechoslovakia are fairly good. It is interesting to note that ten years after this country had gone through most trying times, with a somber outlook, the efforts of its people have been crowned with success, and the society of Czech engineers, jointly with Eugene Schneider, will act as host to the British Iron and Steel institute when the autumn meeting is held at Prague next September. In Austria activities of the iron and steel industries have slackened as a result of the setback in general economic conditions. In Hungary the outlook during the winter was only moderately good. Collieries and iron ore mines have been active. It is generally felt that those industries which have been less flourishing have been subject to seasonal influences.

Spanish Situation Uncertain

The situation in Spain is uncertain, owing to recent important political events. Now that the dictator has given up power, radical changes in the government may occur, and already it can be seen that the economic policy previously followed is being modified. Independently of these events, it is reported that the Spanish iron and steel industry, following the example of other countries, also is going through a process of rationalization.

The outlook in Sweden is fairly good. The experience with electrification of the government-owned railroad between Stockholm and Gothenburg has been so successful that plans are being discussed for electrification of the main line for communication with the continent. Conditions in Norway generally are favorable.

Cruisers Yield Scrap

Abe Goldberg, Seattle, the metal dealer who recently purchased the cruisers CHARLESTON and HURON from the navy, has awarded the contract for cutting up the vessels to the Commercial Welding Co. The work will be done at the former Skinner & Eddy shipyard site. The two vessels are expected to yield about 18,000 tons of steel scrap. Whether this will be exported or sold to local interests is not determined.

Unification of Scientific Groups Sought by British Institute

MORE and more co-operation between internal scientific groups is necessary to disseminate properly the results of the work of metallurgists and to avoid, as far as possible the duplication of research work. Discussing this subject, Dr. Walter Rosenhain, president of the British Institute of Metals, addressing the twenty-second annual general meeting of the institute, held March 12-13 at the Institution of Mechanical Engineers, London, extended an invitation to a conference to be attended by research workers of various nations. The conference will be organized and held at some later date

It was announced that the council of the institute has decided to participate in the movement for the erection of a joint building for the purpose of housing a number of scientific and technical societies at present scattered in various buildings in London.

The following members were elected to the council: President, Dr. R. Seligman, director, Aluminum Plant & Vessel Co. Ltd., Wandsworth, London; vice presidents, W. R. Barclay, Henry Wiggin & Co. Ltd., Birmingham; Dr. R. S. Hutton, director of the British Nonferrous Metals Research association, Birmingham; and R. W. Skelton, engineer vice admiral, London. An invitation extended by the Swiss society of testing materials for the institute to hold its meeting in September, 1931, at Zurich was accepted.

Historical Paper Presented

Following the presidential address, the first paper presented was "The Early Use of the Metals," by T. A. Rickard, mining engineer, Berkeley, Calif. This was followed by a contribution by D. Stockdale, of King's college, Cambridge, entitled "The Composition of Eutectics."

In the afternoon, three papers were presented for discussion; these were: "Experiments on the Influence of Gases on the Soundness of Copper Ingots," by N. P. Allen, assistant lecturer in metallurgy, The University, Birmingham; "Gases in Copper and Their Removal," by W. E. Prytherch, research assistant, department of metallurgy and metallurgical chemistry National Physical laboratory, Teddington: and "Unsoundness in Bronze Castings," by Edward J. Daniels, British Non-Ferrous Metals Research association, Birmingham.

Prof. C. A. Edwards, University college, Swansea, who inspired the research work of which the results were given in the papers, referring particularly to the unsoundness of ingots and castings, stressed the advisability of casting copper ingots vertically.

Prof. Frederick Johnson, Birmingham, said that the casting of vertical ingots is done in certain cases, even commercially, but it involves quite a revolution in the refinery, and involves considerable expense.

Incorrect Impressions Corrected

H. C. Dews, metallurgist, Dewrance & Co., London, referring particularly to Mr. Allen's paper, pointed out that the author gave the impression that the unsoundness of copper ingots was primarily due to the influence of gases. He said, however, that other causes contribute to unsoundness.

The first paper to be presented at the morning session on Thursday, March 13, was the report on the "Investigation of the Effects of Impurities on Copper. Part VI—The Effect of Phosphorus on Copper," by Dr. D. Hanson, of The University, Birmingham, S. L. Archbutt and Grace W. Ford, of the National Physical laboratory. This was a continuation of the systematic research on effects of impurities on copper which is being carried out for the British Non-Ferrous Metals Research association at the National Physical laboratory.

A long and interesting discussion followed the presentation of this report, and several points of practical interest were raised. Dr. Masing, metallurgist of the Siemens-Halske Corp., Berlin, emphasized the effects of phosphorus on conductivity and resistivity. Dr. Rosenhain said that the thanks of the authors were due to Dr. Hutton for his help and interest during the progress of the work. He pointed out that the results of the investigations show that while the addition of phosphorus removes oxygen from copper and improves its casting properties, the age-hardening is small.

R. Genders, metallurgist, Research Department, Woolwich, read a paper entitled: "The Aluminium-Brasses." The work comprised a study of the properties of the ductile aluminum-zinc-copper alloys. It is shown that over certain ranges of composition, the presence of aluminum in brass has a beneficial effect in several directions, especially as regards resistance to corrosion and to oxidation at high temperatures. The compositions of the alloys can be adjusted to give a wide range of mechanical properties in the finished material.

In the afternoon, L. Davies and L. Wright, of the research department, Metropolitan-Vickers Electric Co. Ltd., Manchester, presented a paper, "Protective Value of Some Electro-Deposited Coatings," representing investigations carried out during 1929 on a large number of specimens of steel, brass, phosphor-bronze, and copper, which were plated with cadmium, zinc, nickel, and chromium of thicknesses ranging from 0.0001 to 0.0020 inch, and which were subsequently exposed to accelerated corrosion tests.

Standard Terms Recommended

Opening the discussion, and referring to the use of the terms "electropositive" and "electronegative," Dr. Meissner, Duren, Germany, recommended that they should be standardized, since these terms are often used by various people in contradictory ways. T. H. Turner, Birmingham, said that accelerated tests are of great importance to users, who can make useful references from these tests without having to wait indefinitely, just in the same way as brinell hardness tests are used in other connections.

R. Lancaster and J. G. Berry, metallurgists, Eyre Smelting Co. Ltd., Merton Abbey, London, presented "A Note on Zinc-Base Die-Casting Alloys." They showed that the effect of adding small quantities of magnesium to a zinc-base alloy, hardened with copper and aluminum, was to bring about a variation in the physical properties.

New Books Worth Reading

SCIENCE ECONOMICS BUSINESS

Pittsburgh District Indexed

Directory of Directors and Trade Index of the Pittsburgh District; Victor H. Brownscombe, editor; cloth, 1078 pages, 5½ x 8 inches; published by Bankers Service Corp. of Pennsylvania; furnished by IRON TRADE REVIEW for $25, plus 15 cents postage.

A wealth of valuable information on the Pittsburgh district is provided in this handy reference work. In it is presented a fund of valuable information on the business men, their interests and the products of the Pittsburgh territory. Almost 6000 separate headings are required to list the products of the manufacturers in the district.

The directory covers the seven counties of the district, Allegheny, Beaver, Butler, Armstrong, Westmoreland, Fayette and Washington. In the section, Directory of Directors in the Pittsburgh district, each individual in the district who is a director, officer or trustee of a bank or corporation is listed alphabetically with his main business address. Below appears a list of the corporations and banks in which he is a director, officer or trustee. This also includes the officers and directors of Pittsburgh district corporations whose residences are elsewhere.

Other sections list as completely corporations and firms in the district, banks and trust companies, brokers and investment bankers, professional men and services, such as accountants, architects, attorneys, contractors, engineers, insurance, etc. A directory of office buildings also is provided, as well as a complete commodity index, in which each and every article manufactured or produced in the district is listed with other valuable information.

This handy, compact reference publication has been built up from year to year and represents an accumulation of experience in assembling, analyzing, classifying and compiling information of this character. It is not a flimsy, paper cover pamphlet to become soiled, "dog eared," and wind up in the waste basket, but is an attractively bound volume, being a permanent annual standard reference work, and one which should be of great assistance to the business man who has any contact with business and business men in the Pittsburgh district.

* * *

World Statistics of Iron and Steel

Statistics of the Iron and Steel Industries (1929); compiled by the National Federation of Iron and Steel Manufacturers of Great Britain; VIII+170 pages, 6¾ inches x 9⅝ inches; paper; supplied by IRON TRADE REVIEW, Cleveland, for $1.35, postpaid.

The new edition of these statistics bears the date of publication 1929, and most of the figures are brought up to the year 1928. All future editions will bear the date of publication.

The work, which gives a complete picture of the iron and steel industry of the world, follows in the main the editions issued in the past few years. Further additions have been made in order to make still more complete the statistics relating to the various countires.

In the section relating to Belgium, for instance, new tables have been included, giving the materials consumed for the production of semifinished and finished steel, and additional information regarding the production of coke. A new table has been added to the section dealing with Poland, showing the consumption of scrap. In the case of Canada a new table has been included giving the imports of iron and steel over a series of years, while a section has now been added for the Saar.

The section dealing with tariffs on imports of iron and steel into certain countries has been enlarged by the addition of Chile and Portuguese East Africa, and the reglations governing the grant of British preferential tariffs in certain Dominions are given in detail.

With regard to the United Kingdom, new tables have been added giving the imports by product and ports of entry for the current year and also by ports over a series of years. Similar information is also given regarding exports of iron and steel. A table has also been included showing the imports and exports of scrap iron and steel.

The production statistics for the United Kingdom are based upon returns supplied to the Federation by iron and steel manufacturers throughout the country, and owing to their co-operation the figures are now more complete than at any other period. Production figures, for instance, of pig iron and steel ingots are now received from all makers without exception.

* * *

How Steel Is Heat Treated

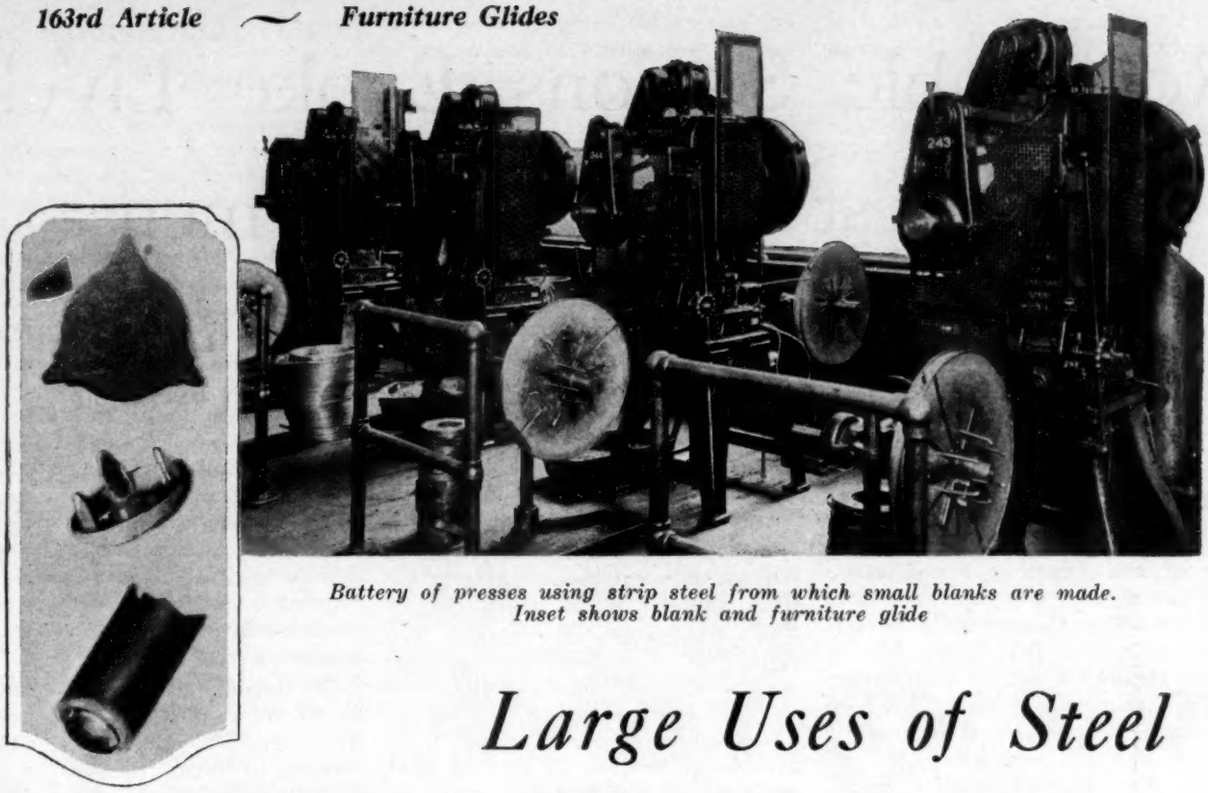
Steel Treating Practice, by Ralph H. Sherry; cloth, 399 pages, 6 x 9 inches; published by McGraw-Hill Book Co. Inc., New York, and supplied by IRON TRADE REVIEW for $4, plus 15 cents for postage, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 20s, net.

With a desire to clarify the situation as to steel treating the author presents a general view of steel treating practice, including simple basic principles, but placing chief emphasis on a broad, nontechnical treatment of practice, standard methods and the industrial aspect.

The requirements of practice are outlined rather than to discuss the theory of steel treating. Inasmuch as practice depends on technical principles it must be discussed in the light of these principles. The basis of steel treating being simple, the author has sought to make it understood, avoiding detail and technical terms which too often bury the main point.

The book is not intended for reading by the technician but for the reader who desires a general view of the field covered in steel treating practice. It is amply illustrated by graphs, diagrams, drawings and halftones, including many photomicrographs.

163rd Article ~ *Furniture Glides*



Battery of presses using strip steel from which small blanks are made. Inset shows blank and furniture glide

Large Uses of Steel In Small Ways

APPROXIMATELY 1000 tons of steel is used annually in the manufacture of furniture glides, according to an estimate by one of the leading manufacturers whose own consumption for this purpose is 300 tons. This is a good example of a comparatively large use of steel in a small and obscure way, as the glides being attached to the bottom of chair and table legs are seldom seen.

They make furniture glide smoothly and silently over hard floors or carpets, and when they were first introduced a generation ago they were considered a luxury, while now a set of four of them can be purchased for 5 cents. The best quality of glides are of file hardness.

Original Design Changed

When the first glides were introduced it would have been difficult to imagine any improvement that could be made in their construction. There was the dome, and three sharp projections straight up from the edge, as simple a little device as could be made. However, when these glides were hammered into the end of a chair leg there was danger of splitting the wood.

An ingenious manufacturer found a way of moving these prongs inside the edge of the dome, and by crimping them in he reinforced the dome. Thus, a wider dome could be used on a chair or table leg, with less fear of damaging the wood.

Another improvement was the making of a glide with one central prong. Glides of this type are made on nail machines. They are for use on the lighter furniture where there is a minimum of exposed surface for nailing. The center-prong type of glide is so processed that the shank is not brittle, though the head is case hardened.

The ordinary type of three-pronged glide is made of soft strip steel. The strip is fed into automatic stamping machines, and the blanks are fed into other machines which give the head the proper shape and press the prongs upward from the edge.

The finishing of the glides determine their quality and the price at which they are sold. Those which are not case hardened are the least expensive, though they are highly polished and give satisfactory service. Constant friction in moving chairs or tables wears them down.

Wearing Qualities Vary

The next best quality has a case hardened "skin," while the best is glass-hard practically all the way through, giving indefinite wearing qualities. The case hardening of the best glides is a lengthy process, taking many days to complete, the cost being held down by the fact the glides are small and large numbers can be treated at one time in a continous furnace.

All the glides have an extremely smooth and bright finish. They have been adapted to other purposes than as furniture glides. Some time ago an effort was made to popularize them for attaching to the bottom of dancing shoes, so that the dancer could glide over the floor as though on ball bearings. This, however, did not gain popularity, probably because the shoes could not be equipped with four-wheel brakes.

THIS is the one hundred sixty-third of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:

Wire Lamp Shades	*Washing Machines*
Belt Fasteners	*Resilient Road Guards*
Sap Spouts	*Screw Drivers*
Flexible Conductors	*Car and Bus Seats*
Foundry Flasks	*Bathroom Cabinets*
Teletype Machines	*Lock Washers*
Porch Furniture	*Steel Scaffolding*
Telegraph Wire	*Pavement Armor*
Waste Receptacles	*Torches*
Chain Screens	*Ironing Machines*
Louvred Ventilators	*Ball Bearings*
Universal Joints	*Telephone Booths*
Rolling Doors	*Springs*
Messenger Call Boxes	*Automobile Lamps*
Foot Guards	*Power Lawn Mowers*

Roundtable Sessions Evoke Lively Interest from Foundrymen

Problems Covering Cupola Practice, Steel and Malleable Founding, Nonferrous Practice, Costs, Gating and Risering Are Discussed

MORE than 300 foundrymen and those identified with foundry equipment and supply firms participated in the first regional meeting of the American Foundrymen's association, held in co-operation with the Quad City Foundrymen's association in Moline, Ill., March 26. A novel application of the increasingly popular roundtable form of luncheon meeting attracted an attendance of 365, divided into seven groups, as follows: Steel foundry practice; malleable foundry practice; high-test cast iron; nonferrous practice; casting and risering; foundry costs; and apprentice training.

These sessions attracted keen interest. At the high-test iron roundtable was traced the history of higher physical properties in gray iron. Attention was directed to the suggestion made by a subcommittee of the American Society for Testing Materials at Detroit during the week of March 16, that instead of the term *high test*, gray iron should be termed with respect to several ranges, probably on the basis of 32,000 to 40,000, 40,000 to 50,000, 50,000 to 60,000 and the remaining classification to cover all material having a tensile strength above 60,000 pounds per square inch. It was brought out that it is possible to make gray iron with a strength of 110,000 pounds per square inch on an experimental basis.

Discusses Air-Furnace Iron

R. F. Harrington, Hunt-Spiller Mfg. Corp., Boston, traced the development of air-furnace gray iron at his plant, from the time when small 10-ton furnaces made the first 30,000-pound iron until the time that 40-ton furnaces regularly produce iron above 40,000 pounds in tensile strength.

In the roundtable on gating and risering, reference was made to the meager data on the proper placing and relation of size and height in gating castings. A common error provides gates which are too large, resulting in air currents and tearing action on the sand as the metal enters.

The malleable roundtable session brought out some interesting points in relation to recent developments in the short anneal. W. R. Bean, Grindle Fuel Equipment Co., Harvey, Ill., stated that it is possible to produce satisfactory malleable castings with only 2½ hours annealing, but not on a commercial scale. Further, it is possible to produce 10 tons of good castings with a short anneal, where 40 or 50 tons, due to greater mass of material will not permit the penetration of heat rapidly enough to give good results on a short cycle. Distortion and oxidation are factors which affect rapid annealing unfavorably.

Considers Sand Problems

The steel roundtable considered sand problems, while that on nonferrous metals concerned itself mainly with the difficulties encountered in casting aluminum. The cost session was devoted mainly to consideration of the standard cost system of the Gray Iron institute.

Fundamental factors underlying proper training procedure, stressing particularly the responsibility of foremen and department heads, were discussed in the apprenticeship roundtable. It is desirable to keep apprentices interested, to acquire and hold their confidence, to give them proper instruction and to emphasize training over production as the main point which the management expects from the apprentice.

In the afternoon more than 250 gathered for a short technical session. R. F. Harrington spoke on sand control and reclamation. The first steps toward study of sand problems in the foundry, according to Mr. Harrington, dates back to the early 1900 efforts of the American Foundrymen's association to develop facts and methods of tests. In 1922, three papers at the annual convention touched on sand problems. This number was increased to eight papers in 1923, ten in 1924 and from four to six every year thereafter. The association has developed and has available for general use a series of tests covering bond strength determined by tension and shear, permeability, dye adsorption and grading.

The closing address was delivered by E. W. Page, General Electric X-Ray Corp., Chicago, who showed the manner in which radiographs point to casting faults which may be corrected by proper gating or other changes in manufacturing procedure. Mr. Page's talk was illustrated by lantern slides which showed many interesting examples of dirt, shrinkage, gas holes and inclusions apparent to the X-ray.

The dinner meeting, attended by 375, was in charge of S. T. Johnston, S. Obermayer and National Engineering Co., Chicago, past president of the American Foundrymen's association. The principal speaker was S. W. Utley, Detroit Steel Casting Co., Detroit, also a past president of the association. Mr. Utley stressed the actuating motives of modern industry, affirming that these are not entirely materialistic, but are based upon a real sense of responsibility to society, a higher selfishness which realizes that greater returns are dependent upon greater accomplishments in furnishing better commodities to a greater number of human beings.

Chairmen of Sessions

The committee of the Quad City group which managed the sessions was headed by the following chairmen: F. W. Kirby, John Deere Spreader Works; John H. Ploehn, French & Hecht; A. E. Hageboeck, Frank Foundries Corp.; John H. Diedrich, Blackhawk Foundry & Machine Co.; and Hyman Bornstein, John Deere & Co. These men were assisted by C. E. Hoyt, executive secretary and R. E. Kennedy, technical secretary of the American Foundrymen's association.

Steel Founders See Good Business Prospects

Steel foundry operations are reported satisfactory, with prospects of continued steady demand running through the next two months, according to the consensus of opinion expressed at the St. Louis regional meeting of the Steel Founders Society of America, held March 27. The society and its work formed the subject of an address by Granville P. Rogers, managing director, New York, who cited the accomplishments since the organization meeting in Chicago last fall. Reports of the cost committee, commercial and technical research committees were presented.

At a luncheon session, Clark McKercher, New York, counsellor of the society, contrasted present day trade association practices with those of some years ago. The early part of the afternoon session was devoted to voluntary discussion of new uses of steel castings, under leadership of L. S. Peregoy, Sivyer Steel Castings Co., Milwaukee. This roundtable was followed by an address by H. S. Greene, merchandizing executive, Chain Belt Co., Milwaukee, on the subject of merchandizing steel castings.

The next meeting of the society will be held at Hotel Hollenden, Cleveland, May 13-14, in conjunction with the convention of the American Foundrymen's association.

Steel Show Will Remain at Stevens Hotel

Definite announcement has just been made that the twelfth National Metal exposition will be held at the Stevens hotel, Chicago, Sept. 22-26. Although the Stevens hotel was originally designated as the place for the show, later consideration indicated that Soldier Field might be used because of the larger amount of space available. The arrangement of space at Soldier Field did not prove satisfactory however, according to W. H. Eisenman, secretary of the American Society for Steel Treating, the organization sponsoring the exposition and the National Metal congress held in conjunction with it.

Net space in the Stevens hotel is 42,000 square feet and includes the following sections: Main ballroom, lounge, writing room and main dining room, all on the second floor and the exhibit hall and foyer where all operating and heavy exhibits will be located. Although this space is considerably less than that used in previous shows, certain advantages are to be gained by having the congress and exposition under one roof. Floor plans are to be distributed shortly.

Engineers to Select Two Artistic Bridges

Selection of the two most artistic bridges built of steel during the past year will be made in June by a jury of nationally known architects and engineers. This will constitute the second annual award of the American Institute of Steel Construction, the first being the Sixth street bridge in Pittsburgh, which was judged to be the most beautiful bridge opened to traffic in 1928.

It is the intention of the institute to make two awards this year. One decoration will go to the steel bridge costing in excess of $200,000 and the other to the steel bridge costing under that amount. These will constitute the most beautiful long-span and the most beautiful short-span bridges opened to traffic during 1929.

Steel Industry Expects Healthy Future

(*Concluded from Page* 77)

greater precision in dimensional control than the old time mechanic could even measure? In spite of the great desire of individuals to advance, however, there are always vacancies in the higher positions, a condition which provides a healthy incentive for continued individual development.

Of course the fact that the United States comprises a large and rich area under a unified control has been largely responsible for the evolution of the present conditions. The development, however, would not have been possible except for the concentration of capital which has taken place as the result of private enterprise. Government provides general political supervision and may, although at an eventual cost, make economic mistakes which can only be slowly corrected. Concentrated capital provides economic supervision over specific industries or localities and economic laws must be ascertained and adhered to. It seems to be a fact that those industries in which large concentrations of capital obtain have been most successful. They have provided the most complete service and have advanced industrial civilization most. The American iron and steel industry is particularly fortunate in this respect.

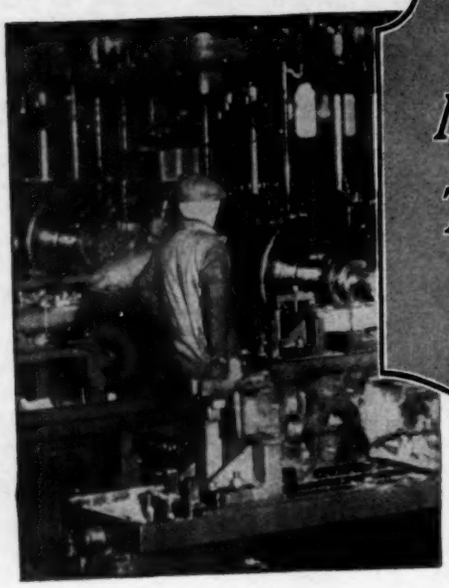
The price received for a commodity is a reward. The producer of the commodity suffers if the price is either too high or too low. It is the popular belief that cut-throat competition leading to temporary low prices for a commodity is beneficial to the purchaser. Nothing could be farther from the truth. The more efficient producing units must make a profit in order to pay proper wages, to pay returns on capital invested, and to improve the business. Otherwise the prices will eventually increase. So the iron and steel industry can help in the maintainence of good business if it on the one hand avoids price wars, and on the other aims at only a fair profit, and it may be mentioned in passing that no profit can be considered fair which does not generously provide for the future development of the industry.

Health Cycles Important

If we refer to the depression conditions as the vicious cycle, we may refer to the opposite conditions as the health cycle. Even the physical and mental health of the people are important factors in business health. Well people have great energy and are heavy consumers of goods; they have great ability to produce and they do not fear the future from the standpoint of gaining a livelihood. The health education activities of the government, national and local, of life insurance companies and of others engaged scientifically, professionally or industrially in health maintainence may have no small bearing on our future business health.

Although we can not foresee many of the specific changes which will come in the future it can be said that there are in sight no factors outside the iron and steel industry which seriously threaten its future growth. The industry, however, needs more research and development work both to pay for sins of omission in the past and to provide aggressive but intelligent exploitation of iron and its various and wonderful alloys for the betterment of mankind. Assuming reasonable compliance with the various conditions discussed previously, it would appear that the American iron and steel industry can look forward not only toward a healthy but even a romantic future.

The Steel Founders Society of America has issued the first edition of a monthly magazine to be known as the *Steel Founder*. The first issue appeared in March and contains greetings from the society's officers, current news of the members and meetings, and technical material of interest to steel foundrymen.



New Machine Tools and Shop Equipment

"Magnified and shaped in steel, here is the final energy, the seed that fertilizes space."
—MacKnight Black

Overcoming Vibration Difficulties

VIBRATION, in one form or another, has been a source of much trouble to designers and operators of machines, whether they be large forging hammers or small precision lathes. The subject of vibration is a comprehensive one, embracing several types.

Confining the discussion to the vibration due to process, such as that produced by the operation of a forging hammer, it is seen that although the vibration has no undesired effect on the product it is apt to affect adversely other machinery or equipment operated near the hammer. Two methods suggest themselves in overcoming this troublesome feature: One, changing the design of the hammer; and the other, adjusting the foundation to dampen or absorb vibrations produced by the blows of the hammer.

A recent installation has demonstrated forcibly the ability to absorb the vibrations of a drop forging hammer which had been installed on the fourth floor of one of the older buildings in New York. Realizing the possible difficulties due to excessive vibration, the engineering department of a leading architect was requested to design the foundation with a view to absorbing vibration. The installation was designed somewhat as follows: A heavy concrete block 6 by 8 feet in size and 16 inches thick was placed on 6 inches of sand and 4 inches of compressed cork. Inasmuch as the concrete block extended into the floor it was isolated on the sides by means of 2 inches of compressed cork. The hammer was mounted on the concrete block, but despite these precautions the blows of the hammer shook the entire building, even when operated at low speeds and operation at normal speed was practically out of the question. It was apparent that a redesign of the foundation was necessary as a study of the old installation disclosed that the compressed cork on the bottom was pulverized completely and the sand packed so tightly that isolating and damping properties were nullified. A new foundation was designed and installed.

Damping Devices Used

This foundation consisted of a reinforced concrete block 4 feet 2 inches by 6 feet 3 inches and 9½ inches thick, in which were imbedded the hold-down bolts of the hammer and three 12-inch 20-pound channel irons that extended 7 inches beyond the sides of the concrete block. The block was placed on seven specially designed vibration dampeners, the bases of which rested on cork pads 2 inches thick. The channel irons were bolted to the dampeners and the hammer mounted and bolted to the concrete block. As a result of this installation the hammer was "tamed" and is now being operated at its highest speed and vibrations are said to be unnoticeable in other parts of the building.

Generally, the task of eliminating vibration and noise transmitted from machines in operation is carried out in such a way that the energy of vibration is absorbed through the arrangement of suitable isolating materials under the disturbing machine, as in the case just described. However, conditions often arise where it is advisable, for economic reasons possibly, to deviate from this method and to arrange the isolating materials at the place where the disturbing vibrations cause trouble.

In a certain plant a lathe for turning axles was set up at a distance of about 50 feet from the forge shop. The operation of the lathe had to be discontinued because each stroke of a forge hammer caused a momentary lifting of the tool from the piece being worked. When jumping back, the tool cut a groove in the finished surface.

Ordinarily the forge hammers would have to be isolated to remedy the difficulty but since there were five hammers already installed and the isolation of each of them would cause considerable delay in operations, it was decided to isolate the lathe against the action of the hammers. The lathe, weighing about 40,000 pounds, was mounted on a concrete block under which a number of mechanical vibration dampeners were arranged. In order not to raise the height, the whole construction was let into the floor. By this method the stability of the lathe was maintained while the hammers were in operation at considerably less cost than isolating all the hammers.

These are but two instances of overcoming vibration by attention to foundation design, an important branch of the vibration elimination field.

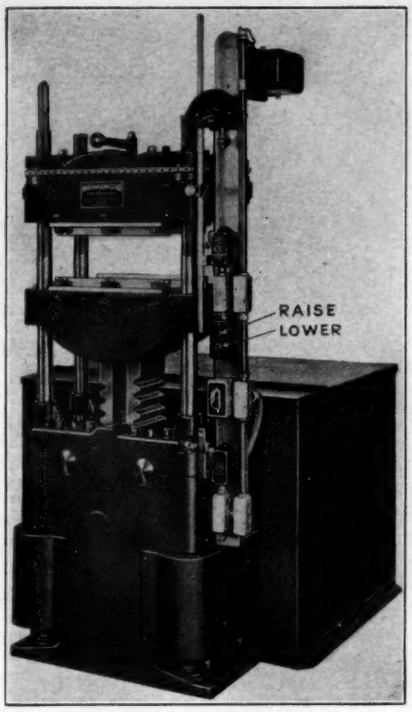
Automatic Timing Device Controls New Press

No. 92

Terkelsen Machine Co., Boston, has developed an electrohydraulic press, shown in the accompanying illustration, which is equipped with a timing relay on the upper right side of the machine, for timing automatically the opening cycles during curing operations and permitting adjustment over a range sufficiently great to allow the operator to predetermine the opening cycle. The presses can also be equipped with an additional feature that would permit throwing forward the molds during the curing process to permit an inspection on the part of the operator. The machines also are applicable to many metalworking operations.

Uniform Pressure Obtained

The presses are spring actuated and electrically-operated against hydraulic action. They are said to give uniform pressure at all times, and stop automatically at the end of the stroke or when desired pressure has been reached. They automatically open at the end of the curing period. Toothed racks exert the same force downward as upward instead of the usual ram of the hydraulic press. The machines are fitted with automatic ejectors, enabling the operator merely to remove the pieces and refill the die with minimum loss of time. They are semiautomatic, insuring good results and protection to the mold against careless handling, and they can be used as manually-operated presses without delay in changing over.



No. 92—Automatic device for controlling press is shown at upper right

Small Surface Grinders Have Wide Range

No. 93

Berea Machine & Tool Works, Berea, O., is manufacturing a line of small surface grinders which may be used not only for grinding flat surfaces and grooves, but for grinding vertical surfaces, by using dish or cup wheels. The grinders have a table travel of 10 inches by lever, and may be equipped with elastic wheels for cutting off stock, an electric centrifugal pump carrying water to point of cutting off, sheet rubber water guard between table and column, and splash guards which will allow the use of the full surface of the table. The spindle is 1¼ inches diameter with ball bearing support and spring end tension. It is thoroughly protected from dust, and has a removable tapered end. The rotor is mounted directly on the spindle, which also carries a fan to draw air through openings in the rear and drive it past the stator to discharge through an opening in the bottom of the sleeve.

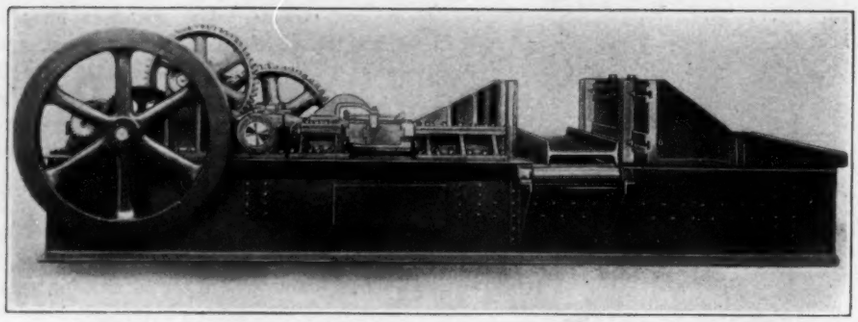
Die Spotter Operates on Shop Air Supply

No. 94

Marquette Tool & Mfg. Co., Chicago, has introduced a unique die spotting machine which is available in bench sizes up to 100 tons. The mechanical principles of this machine are as follows: The movement of the slide or ram is actuated by compressed air from the regular shop air supply. Bed and ram are held in alignment by four guide rods, and the frame is designed to show no deflection even under great pressure. The ram of this machine can be operated at any desired speed, with all controls conveniently placed for the operator. This machine is especially useful in shops which have considerable draw-

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date described	Page
Drill press	Portable pneumatic type; for large dies, castings	Buckeye Portable Tool Co.	74	March 20	55
Furnace	Small nitriding furnace; forced circulation	Hevi Duty Electric Co.	75	March 20	55
Drive	Flat belt arrangement; motor weight keeps tension	Rockwood Mfg. Co.	76	March 20	55
Nut	Single-thread lock nut made of spring steel	Palnut Co. Inc.	77	March 20	96
Drives	Standardized in two types for screw conveyors	H. W. Caldwell & Son Co.	78	March 20	96
Starter	Across-the-line starter with overload trip	Cutler-Hammer Inc.	79	March 20	97
Carriers	Improved line of belt coveyor idlers; bearings protected	Stephens-Adamson Mfg. Co.	80	March 20	97
Grinder	Combination disk and floor stand 5-horsepower type	Hisey-Wolf Machine Co.	81	March 20	97
Grinder	Pneumatic sander and grinder; special governor	Buckeye Portable Tool Co.	82	March 20	97
Welder	Electric; equipped with device to stabilize arc	Westinghouse Electric & Mfg. Co.	83	March 20	98
Beader	Handles up to 22-gage sheets; 8¼-inch throat	Niagara Machine & Tool Works	84	March 20	98
Bandsaw tire	Can be changed with little time loss	Carter Products Co.	85	March 27	72
Automatic welder	Automatically welds brake cross shafts with carbon arc	Lincoln Electric Co.	86	March 27	72
Heat measuring device	Photoelectric cell quickly reads steel temperatures	Westinghouse Electric & Mfg. Co.	87	March 27	111
Flue cleaning machine	Automatic progression gives maximum efficiency	Joseph T. Ryerson & Son Inc.	88	March 27	111
Milling machine	Will cut through-slots in bars 9 inches in diameter	William K. Stamets	89	March 27	112
Coal pulverizer	Vertical shaft mill-type pulverizer has magnetic separator	Pulverized Fuel Equipment Co.	90	March 27	112
Press blank holder	Pneumatic holder built as integral part of press bed	Marquette Tool & Mfg. Co.	91	March 27	112
Timing device	Automatically controls electrohydraulic press	Terkelson Machine Co.	92	April 3	87
Surface grinder	Grinds both flat and vertical surfaces	Berea Machine & Tool Works	93	April 3	87
Die spotter	Operates on shop air supply; high accuracy	Marquette Tool & Mfg. Co.	94	April 3	87
Grinder attachment	Simplifies sharpening of face mills	Cincinnati Milling Machine Co.	95	April 3	88
Bending machine	For structural shapes; riveted and welded	Thomas Spacing Machine Co.	96	April 3	88
Tool housing	Electric tools provided with stronger housings	United States Electrical Tool Co.	97	April 3	88
Centrifugal accelerator	Hydromatic starter provides more uniform starting	Worcester Polytechnic institute	98	April 3	88
Pump	Two-stage, vertical type; no packing used	Ruthman Machinery Co.	99	April 3	89
Upsetting machine	Unusually large; has twin flywheels and twin gearing	Ajax Mfg. Co.	100	April 3	89



No. 96—Bending and straightening machine which will handle all types of structural shapes

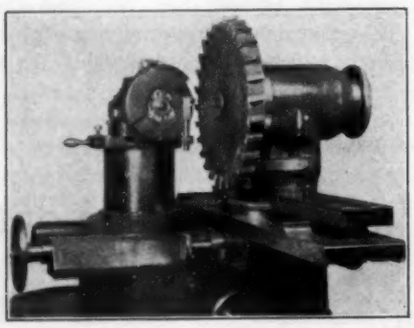
ing or stamping work, and is said to be unusually accurate.

Grinder Attachment Aids Face Mill Sharpening

No. 95

Cincinnati Milling Machine Co., Cincinnati, has developed a new face mill grinding attachment for sharpening quickly and accurately face mills 8 to 18 inches diameter. The attachment, shown in the accompanying illustration, is built for use with the new No. 2 plain or universal cutter grinders recently announced by the company.

The attachment consists of three units; the spindle assembly, swivel base and special arbor. The entire assembly is rigidly constructed insuring perfect sharpening. The work spindle has a No. 7 morse taper hole



No. 95—Sharpening attachment shown in position ready for work

and is mounted upon antifriction bearings front and rear giving that sensitive and free movement highly desirable when indexing from one tooth to another. It is equipped with a knurled hand wheel on one end of the spindle to be used in swinging mill to the grinding position. The swivel base is graduated in degrees from 0 to 360 enabling the operator to swivel the work to any required position. Provision has been made for locking the spindle after the cutter blade is set in line with the centerline of the grinding wheel spindle so as to prevent any movement of the cutters while setting up the tooth rest. The distance between the centerline of attachment and the table is 9½ inches.

Bending Machine Frame Riveted and Welded

No. 96

Thomas Spacing Machine Co., Fulton building, Pittsburgh, recently has developed a new bending and straightening machine of simple construction to handle all type of structural shapes. The machine, shown in the accompanying illustration, is built in 150 and 300-ton sizes and has a frame of built-up structural steel with all parts taking up thrusts both riveted and welded. The rivets alone possess sufficient strength to carry the maximum capacity of the machine with a margin of safety, according to to the builder. This departure from the practiced method of frame construction is said to result in a stronger and lighter unit. Gears are machine cut steel; the camshaft is an open-hearth forging; and ram and bolster blocks also are of steel. In use the machine is universal in its application to bending and straightening problems. Warped pieces are straightened and returned to their original shapes with a minimum of effort while with slight adjustment of the wedges it is possible to obtain practically any desired bend in any class of material within the capacity of the machine.

New Type Housings Used for Electric Tools

No. 97

United States Electrical Tool Co., Cincinnati, has announced that bohnalite housings are now being included on all ¼, 5/16 and ⅜-inch portable electric drills; and also on the No. 1 and 2 sizes of screw drivers, valve grinders and tappers. This metal has been adopted because of its great strength and its ability to stand up under rough handling and hard service.

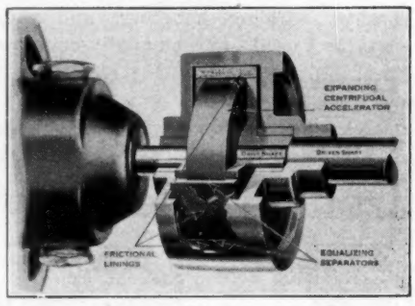
The new design of the special drills permits removing one side of the handle and housing end in one piece. This makes the switch, wiring and commutator more easily accessible when servicing becomes necessary. The brushes, too, are quickly removed and replaced. The new lines of the handle give increased gripping ease, and improve the drill's appearance.

Centrifugal Accelerator Feature of Starter

No. 98

Washburn Shops of the Worcester Polytechnic institute, Worcester, Mass., has developed a hydromatic starter applicable to direct drives, gears, chain, V-belt and flat belt drives. The operation of the starter depends upon a centrifugal force exerted by a fluid sealed inside a rotating flexible container. The interval of time required for the fluid to distribute itself uniformly around the inside of the container is the important interval which allows the motor to attain full speed without load, while the gradual building up of the centrifugal force or pressure gives a smooth pickup.

In place of balls, weights, cams, and levers for obtaining pressure, the starter, shown in the accompanying



No. 98—Sectional view of centrifugal accelerator showing method of construction

illustration, uses an expanding centrifugal accelerator containing a fluid which automatically gives the necessary pressure. On installation, the accelerator is wholly enclosed and no adjustments are necessary during its entire life. The fluid usually is mercury for the smaller sizes and water for the larger sizes. When the starter is at rest, the fluid is in the lower part of the accelerator. The fluid requires an interval of time before it becomes distributed uniformly

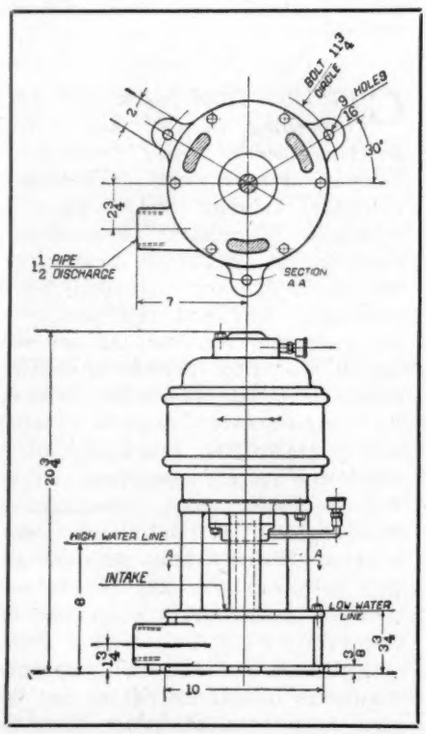
around the inside of the accelerator, the pressure acting in a radial direction, although, until distribution takes place, there is no pressure on the housing.

Vertical Two-Stage Pump Employs No Packing

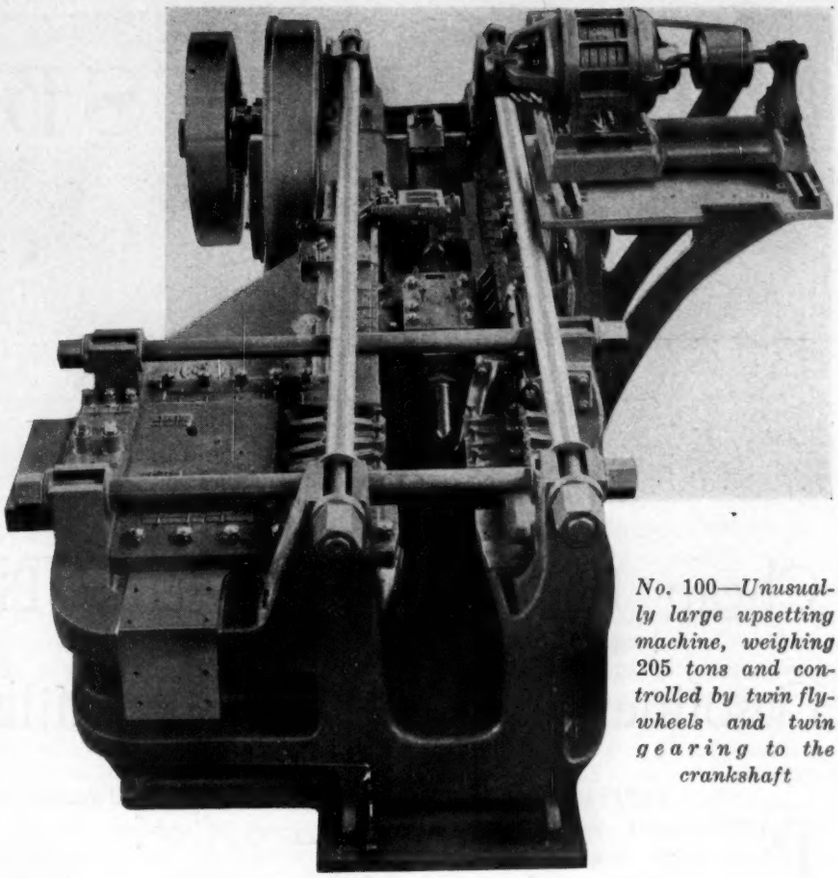
ITR No. 99

Ruthman Machinery Co., Cincinnati, has added a new 2-stage pump, to its line of vertical motor-driven pumps, capable of developing 39 pounds pressure per square inch, and able to pump 90 feet high. The pump, shown in the accompanying illustration, is equipped with a 1½-horsepower motor. The pump has no packing, thereby eliminating unnecessary friction, and permitting the full benefit of the ball bearing construction to be applied with full utilization of the power consumed.

The intake is constructed with a stationary device of three curved blades to prevent the water from whirling and forming a conical shape. This feature prevents the entrance of air, making the flow solid and free from air bubbles. This pump has three distinct uses: First, for supplying coolant to a number of machines from a central reservoir, thereby eliminating the necessity of individual pumps; second, for creating pressure for hydraulic movements; and third for use with air cleaning and humidifying systems.



No. 99—Diagrammatic sketch of 2-stage pump which employs no packing



No. 100—Unusually large upsetting machine, weighing 205 tons and controlled by twin flywheels and twin gearing to the crankshaft

Large Upsetting Machine Weighs 205 Tons

ITR No. 100

Ajax Mfg. Co., Euclid, O., has placed in operation what is considered the largest upsetting forging machine built up to the present time. This machine, shown in the accompanying illustration, weighs 410,000 pounds. The bed casting exceeded the load capacity of a 90-ton freight car and is the largest and heaviest casting ever made by the Otis Steel Co., Cleveland, requiring 128 tons of molten metal in its pouring. The casting has continuous crankshaft housings and heavy ribbing located for maximum rigidity. It was machined on the ordinary equipment of the Ajax company.

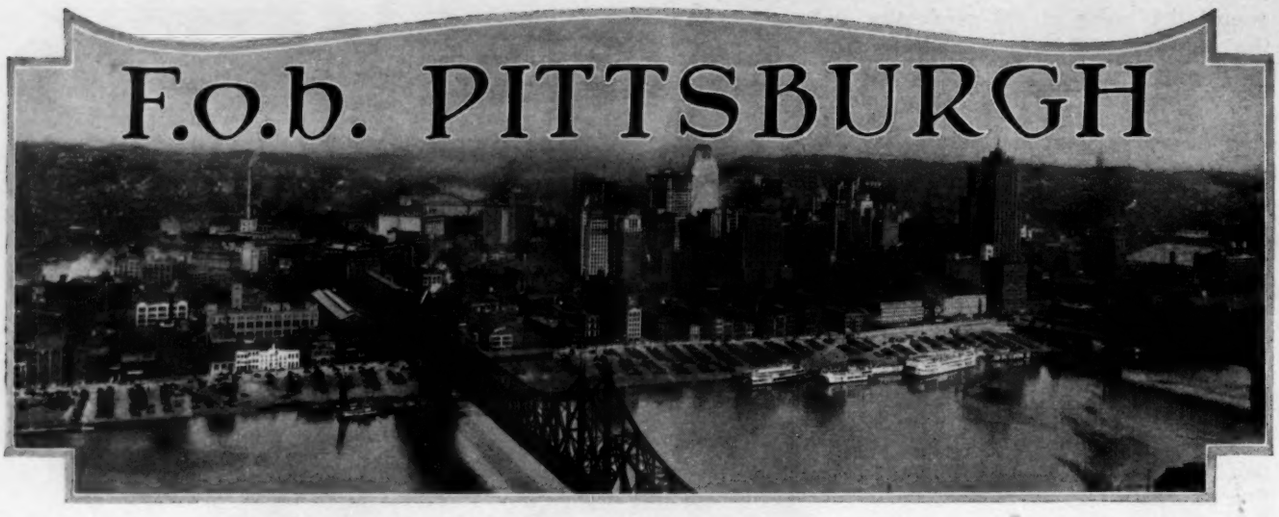
The upsetter has twin flywheels and twin gearing to the crankshaft to deliver power for the heaviest demand. Despite the enormous size, the working parts are thrown into motion with little effort, vibration or noticeable shock. The machine is driven by a 100-horsepower motor and has an unusually heavy crankshaft in constant rotation. It is simple in design and is featured by the rigidity and ruggedness of the working parts.

Milwaukee municipal harbor commission has bought four 25-ton locomotive cranes from the Emergency Fleet corporation, Washington, for $18,000.

Nitriding Furnace Cuts Down Lost Time

In the description of a new experimental or limited production type electric nitriding furnace appearing as Item No. 75 on page 55 of the March 20 issue of IRON TRADE REVIEW a misstatement was made in specifying the nitriding cycle. The statement should have read "This type of furnace permits a practically continuous use of the furnace without long delays and interruptions to the heating cycle caused by cooling down and gassing, which usually comprises a time of 10 hours." The furnace is manufactured by the Hevi Duty Electric Co., Milwaukee, and is of the forced circulation type, a centrifugal fan supported by the cover producing the rapid circulation.

The entire length of the 874 miles of pipe the Columbia Gas & Electric Co., Cincinnati, was cleaning for transformation from an oil line to a gas line was found to be wrought iron pipe, much of which was installed in 1880.



Cheap Fuel, Rivers, Buttress Pittsburgh's Position

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Gasoline Lines Boon to Pipe Mills; Building Expands

PITTSBURGH, April 1

PITTSBURGH has viewed with equanimity the sharp struggle that has been waged over possession of the Youngstown Sheet & Tube Co. Local steel men have been of the opinion that the inclusion of the Sheet & Tube properties in the Bethlehem fold would have little adverse effect on the mills of this district and that Pittsburgh independent mills might even benefit from such a sale. The latter belief is based on the contention that certain steel buyers prefer to do business with the smaller independent producers rather than with the large interests and would turn to other mills for their supplies were Sheet & Tube to become merely a part of the Bethlehem organization.

Considerable confidence also is evinced in the ability of this district to maintain its position as a steelmaking center despite the attention that has been given by steel executives to the obtaining of production facilities in the Central West and Pacific coast, as well as the scramble for the steel market in the Detroit district.

Availability of coal and low cost of river transportation continue as important factors in making Pittsburgh's position secure. Although predominately a steel producing district—ingot output per capita being about 10 tons against slightly more than one-half ton for the entire country last year—diversification of industrial activity has prevailed to a sufficient degree to provide a satisfactory balance.

* * *

STEELMAKING probably has overshadowed the other important industries of this district even though companies in these latter fields include leading concerns in both the United States and the world. Among these are producers of airbrakes, electrical equipment, aluminum, cork, fire brick, glass, railway signals, freight cars and steel mill equipment in addition to the large coal and coke producing interests. Reports on income tax collections for 1929 attest the prosperous condition of local industry during last year, payments showing an increase of about $2,000,000 over 1928 in the face of a decline for the country as a whole.

* * *

PITTSBURGH, like other industrial centers, has had its unemployment problem since the first of the year although probably to a less serious degree than that experienced in other districts. Comprehensive data are not available although some indication of the general trend is contained in the monthly report of the Employers' Association of Pittsburgh, based on employment figures submitted by 67 companies with a working force of more than 35,000. This does not include the larger steel companies of the district. Total man hours worked dropped to 7,773,854 in December, rising to 8,630,923 in January.

This gain was due largely to improved activity in foundries, machine shops and structural shops. Structural shops showed a steady gain in employment from November to February, while hours worked in foundries, machine shops and miscellaneous industries dipped in December. The report for all groups shows 73.6 per cent of the normal working force employed in January, compared with only 69.1 per cent in January, 1929. Less improvement has been noted during the past two months, however, complete figures for which are not available.

* * *

CONSTRUCTION work has been expanding in this and nearby districts, thereby aiding employment, following a poor month in February. February building and engineering contracts in western Pennsylvania amounted to $15,133,000, against $8,769,500 in January and $6,956,000 a year ago. The first two months of the year, however, were 39 per cent behind the 1929 period. Allegheny county is selling $7,400,000 in bonds for improvement projects costing nearly $18,000,000, practically all of which are under construction. Bridge and boulevard work predominates. Philadelphia Co., the local utility company, Pennsylvania railroad and Bell Telephone Co. have laid out extensive improvement programs for this year.

Operations of several important companies in this district so far this year have been at better than the average rate for the period, offsetting in a measure the decline in employ-

ment elsewhere. Both the Mesta Machine Co. and the United Engineering & Foundry Co. have reported unfilled orders sufficient to keep their plants well occupied until the end of the year. Westinghouse Electric & Mfg. Co. entered 1930 with unfilled orders of more than $62,000,000, an increase of about $15,000,000 over the total the year before. Both the Standard Steel Car Co. and the Pressed Steel Car Co. are comfortably booked. Steel mill employment naturally has been affected by the decline in operations compared with last year although schedules of some companies during the first quarter held near capacity, including those of the McKeesport Tin Plate Co., Pittsburgh Steel Co. and Copperweld Steel Co.

* * *

RIVER shipments of iron and steel products reflect in a measure the restricted activity in the industry compared with a year ago, but at the same time increases are noted in the longer hauls from Pittsburgh. The movement on the Ohio river in this district during January and February rose from 120,674 tons in 1929 to 139,121 tons this year. Steel traffic over the Monongahela river, which includes most of the interplant shipments, however, declined from 163,760 tons in the first two months of last year to 139,111 tons in 1930. Coke traffic on the Monongahela river during that period dropped from 220,573 tons to 192,040 tons, while shipments of coal increased from 3,704,585 tons to 3,705,367 tons in January and February of this year.

Barge builders are faced with a less favorable business outlook than was true several months ago. First quarter awards numbered only 41, requiring 6000 tons of steel, against 145 involving 19,000 tons in the 1929 period. The state of general business is given as the reason for hesitancy in placing of river equipment that had been considered some time ago.

* * *

THE newest bid of the Pittsburgh district for honors in the automotive industry will make its bow to the public within a month, according to the American Austin Car Co. Inc., which plans to start shipments of its diminutive vehicle from its Butler plant about May. 1. Operations for the present will be largely of an assembly nature and it is expected to reach a daily output of 500 cars in September. Orders booked from dealers are said to exceed 100,000 vehicles.

The reception of this automobile, which will be the smallest in commercial production in the United States, is awaited with interest inasmuch as it makes an appeal to a new low-price market in addition to offering competition to producers in the next higher field, both in the passenger car and light delivery truck markets. The car does not offer a large local market for steel at present, although more parts are expected to be manufactured at Butler after production has been well established.

* * *

PIPE lines for gasoline transportation are looming as an outlet for substantial steel tonnages. During the past several years line pipe has been in growing demand for the distribution of natural gas from the various fields in West Virginia and Ohio in the East, in Oklahoma, Texas and Louisiana in the Southwest, and in California on the Pacific coast, to the large consuming centers. In addition, pipe of considerably larger diameter is employed for gas lines than for oil lines and this also has served to increase materially the tubular production that formerly was used largely for the passage of crude oil to the refineries. Of the approximately 600,000 tons of steel pipe involved in the larger main lines awarded last year, more than 80 per cent went into gas lines.

Although admittedly somewhat in the stages of early development, gasoline lines give indications of becoming widely used in future years. Pittsburgh already has assumed some importance as a center for a gasoline distribution. The Tuscarora Pipe Line Co. recently transported 1,200,000 gallons of gasoline here by pipe from New Jersey for the Standard Oil Co. of Pennsylvania. Both of these companies are subsidiaries of the Standard Oil Co. of New Jersey. On this gasoline movement a saving of ¾-cent a gallon is reported compared with the rail shipment rate.

* * *

THE Standard Oil Co. of Pennsylvania has built a river terminal at Midland, Pa., and is erecting another at Belle Vernon for moving gasoline by water and also by rail and truck to interior points. Three tanks of 2,000,000 gallons capacity have been provided at Midland for storage of gasoline, and six barges will be used for transportation to river terminals, each having a capacity of 84,000 gallons. Another oil company planning to ship by river is the Refiners Oil Co., which is preparing to bring gasoline from the South by boats to a site near Cincinnati, where it will be stored in eight 1,000,000-gallon tanks preparatory to distribution by barge along the Ohio river.

Still other gasoline lines are planned. The Sun Oil Co. has made preparations for the construction of a line from eastern Pennsylvania to Pittsburgh with connections to Cleveland or Toledo. The company is understood to be negotiating for a tract of land in the former city for a terminal along the Cuyahoga river, which would give access to further movement by boat on the Great Lakes. In the Middle West the Barnsdall Corp. is considering the laying of a line from Oklahoma to Milwaukee. At the same time, plans for the broader distribution of natural gas to the leading communities in nearly all sections of this country continue active.

* * *

LOCAL pipe mills experienced a dull first quarter, the poor activity in building operations contributing to a light demand for standard pipe. Order books of line pipe were depleted during the fourth quarter of last year and although considerable work has been in prospect for a number of months the placing of orders ordinarily is deferred until the arrival of more suitable weather for the laying of the lines. Efforts to restrict oil well drilling were aided in a measure during the past several months by severe weather, both circumstances serving to curtail demand for tubular products.

Interesting developments in the pipe making industry are looked for this year, particularly in the electric welding processes. The success experienced in the production of tubular material by this and the seamless methods is believed to spell the gradual obsolescence of the lapwelded production, although the change probably will not be of the over-night variety.

* * *

INCREASED competition for the A. O. Smith Corp. of Milwaukee in large diameter pipe business is seen as the result of developments made in similar welding processes by other companies. At Warren, O., the Republic Steel Corp. is turning out the smaller sizes by its stitch welding method and is preparing to work into the larger diameters as soon as possible. National Tube Co. is making marked progress on its new McKeesport, Pa., mill. Little information has been forthcoming regarding the details of the electric welding process this company is understood to be planning to use.

A. M. Byers Co. is completing work

(*Concluded on Page* 127)

1929 Iron Production Is Record by 5.5 Per Cent

PIG iron and ferroalloys produced in 1929 totaled 42,613,983 gross tons and thereby constituted a new all-time record, exceeding the 1923 high mark of 40,361,146 tons by 2,252,837 tons, or 5.5 per cent, according to official figures just announced by the American Iron and Steel institute. Against the 1928 figure of 38,155,714 tons, the 1929 increase was 4,458,269 tons or 11.68 per cent.

Constituting the total was 41,757,215 tons of pig iron and 856,768 tons of ferroalloys, the corresponding figures for 1928 being 37,401,648 tons and 754,066 tons. In 1923, the previous record year, pig iron amounted to 39,721,415 tons and ferroalloys, 639,731 tons. Details of tonnages by grades and changes from 1928 by percentage are given in the accompanying table.

Of the total prodution of pig iron Pennsylvania made 14,016,015 tons or 33.57 per cent; Ohio, 9,702,005 tons or 23.23 per cent; Indiana and Michigan, 5,085,615 tons or 12.18 per cent; Illinois, 4,357,905 tons or 10.44 per cent; Massachusetts and New York, 2,804,698 tons or 6.72 per cent; and Alabama, 2,704,733 tons or 6.48 per cent. As compared with 1928, Pennsylvania made a gain of 16.29; Ohio, 7.6; Indiana and Michigan, 10.97; Illinois, 10.54; Massachusetts and New York, 18.5; and Alabama, 7.44 per cent.

Of the total production of pig iron and ferroalloys, 9,634,627 tons was made for sale and 32,979,356 tons for makers' use. This represented a proportion of 22.6 per cent merchant and 77.4 per cent nonmerchant. Corresponding figures for 1928 were 21 per cent merchant and 79 per cent nonmerchant.

On the basis of fuel used, 41,619,022 tons of pig iron was made with coke and 138,193 tons with charcoal. The 856,768 tons of ferroalloys was not classified as to fuel used but represents all ferroalloys made in blast furnaces or electric furnaces.

Charcoal pig iron with 138,193 tons showed a decrease of 4767 tons from the 142,960 tons in 1928, despite the larger production of all iron in 1929.

Comparative use of direct iron over that cast in pigs is shown by the fact that 29,562,160 tons was delivered in a molten condition, the remaining 13,051,823 tons being cast. Machine cast accounts for 11,202,297 tons and sand cast for 1,317,636 tons. Direct castings totaled 29,816 tons and chill cast 502,074 tons. Basic iron accounts for most of the tonnage delivered molten, as 20,794,202 tons of that grade was delivered hot and 4,117,452 tons in cast form.

Oil Burner Exhibit and Meeting Arranged

Seventy-one exhibitors have contracted for space in the oil burner show to be held concurrently with the seventh annual convention of the American Oil Burner association, at the Stevens hotel, Chicago, April 7-12. The exhibition, according to Harry F. Tapp, executive secretary of the association, will feature a display of oil burners and equipment. Convention sessions have been arranged for mornings, leaving afternoons and evenings for show attedance.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., is planning to deviate from the conventional black for the coloring of its oil-electric locomotives by offering locomotives in a variety of color schemes. The art department of Carnegie Institute of Technology, Pittsburgh, is co-operating in the selection of color.

PRODUCTION OF COLD, HOT, AND WARM BLAST CHARCOAL PIG IRON, GROSS TONS, 1925–1929.

Kinds of pig iron.	1925.	1926.	1927.	1928.	1929.
Cold blast	1,014	400	.....	.....	.....
Hot and warm blast	195,150	163,480	164,569	142,960	138,193
Total.....Gross tons.	196,164	163,880	164,569	142,960	138,193

PRODUCTION OF PIG IRON BY GRADES AND FERRO-ALLOYS BY KINDS, 1928–1929, SHOWING INCREASE OR DECREASE.

Grades of pig iron and kinds of ferro-alloys	1929.	Per cent.	1928.	Per cent.	Increase.	Per cent.
Pig iron:						
Basic	24,911,654	59.66	22,124,410	59.15	2,787,244	12.60
Bessemer and low-phos.	9,877,240	23.65	9,013,847	24.10	863,393	9.58
Foundry	4,446,011	10.65	4,209,790	11.26	236,221	5.61
Malleable	2,312,813	5.54	1,922,970	5.14	389,843	20.27
Forge	167,930	.40	88,362	.24	79,568	90.05
All other pig iron	*41,567	*.10	42,269	.11	*702	*1.66
Total pig iron	41,757,215	100.00	37,401,648	100.00	4,355,567	11.65
Ferro-alloys:						
Ferro-manganese	476,655	55.63	419,213	55.59	57,442	13.70
Spiegeleisen						
Ferro-silicon	341,222	39.83	303,595	40.26	37,627	12.40
All other ferro-alloys	38,891	4.54	31,258	4.15	7,633	24.42
Total ferro-alloys	856,768	100.00	754,066	100.00	102,702	13.62
Grand total	42,613,983	.....	38,155,714	.....	4,458,269	11.68

*Decrease.

PIG IRON AND FERRO-ALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN 1929.

Pig iron and ferro-alloys.	For sale.	For maker's use.	Total. Gross tons.
Pig iron:			
Basic	2,169,147	22,742,507	24,911,654
Bessemer and low-phosphorus	567,711	9,309,529	9,877,240
Foundry	4,112,649	333,362	4,446,011
Malleable	2,060,662	252,151	2,312,813
Forge or mill	101,147	66,783	167,930
White and mottled, direct castings, etc.	2,536	39,031	41,567
Total pig iron.....Gross tons.	9,013,852	32,743,363	41,757,215
Ferro-alloys:			
Ferro-manganese and spiegeleisen	240,728	235,927	476,655
Ferro-silicon	341,222		341,222
All other ferro-alloys	38,825	66	38,891
Total ferro-alloys.....Gross tons.	620,775	235,993	856,768
Total pig iron and ferro-alloys...G. T.	9,634,627	32,979,356	42,613,983

Editorials

Breakers Ahead for Mergers

SHREWD students of politics and business have been saying that 1930 will mark the end of the postwar merger movement. They sense a rising tide of opposition at Washington to the further pyramiding of big business, noting that the department of justice is disposed to interpret the antitrust laws more critically and that congress more frequently emits a hostile blast. Only a miracle, apparently, can prevent control of the congress from passing to Democrats in next fall's elections, and a torrent of investigation and restrictive legislation in 1931 is foreseen.

It may be assumed that size per se is not incriminating; the tendency to restrict and lessen competition is the test. In steel, it would not appear that mergers recently consummated or pending would come under fire so long as the United States Steel Corp., accounting for 26,000,000 of the country's 62,000,000 tons of ingot capacity, giving effect to pending construction, is unassailed. What Washington may want to know is: Have the mergers eliminated a free market for iron and steel? Has competition been lessened to the point where price fixing is possible?

An unbiased scrutiny would reveal irrefutable logic behind many of the steel industry's mergers. Unquestionably they have eliminated some competition, but not to the point where the consumer is pinched. Practically all large consumers of iron and steel have been earning more on their invested capital than their material suppliers; it would be unfair indeed to bar the latter from improving their position, always provided the efforts fall short of creating monopoly. But it is always difficult to talk stabilization to the average member of congress: his viewpoint is protection of the consumer. So regardless of any inherent merit, it would seem politic for the industry—for all industry, in fact—to chart its course over the next year or so to ride into strong headwinds.

Better Pipe Technic Aids Gas Fuel

STRIKING changes are being wrought in the natural gas industry as the result of steel fabrication processes that are broadening the market for pipe products, and adding appreciably to the nation's wealth. Natural gas supersystems are eliminating remote sectional operations and forming a network of pipe lines that link widely separated industrial districts.

While the piping of gas from the Southwest and Pacific coast oil region has been in progress for some years, no year equaled 1929 in actual volume of new pipe construction. This expansion promises to continue. More than 80,000 miles of pipe carry natural gas, in addition to about 100,000 miles in oil lines. Not long ago it was considered a noteworthy engineering feat to build pipe lines as long as 250 miles. More recently lines up to 1000 miles in length have been constructed and others are projected. Some views are that as a result of the pipe line systems, the end of 1930 may see the total investment in the natural gas industry reach $2,000,000,000.

Baked Surface Finishes Popular

JAPANNING and enameling are perhaps the most widely used and most durable surface finishes applied to metals. For the reason that they have been utilized for a long time and have proved both economical and satisfactory, not a great deal of information has been presented on the process and its development in recent years. Consequently, the authoritative article on Page 71 of this issue of IRON TRADE REVIEW will be found worthy of study.

Both japan and enamel are baked finishes and are identical except that japan refers to black only. They are applied by dipping or spraying and are quickly dried in the oven, the time varying from 15 minutes to 4 hours, depending upon equipment and conditions. This rapidity of drying has encouraged the use of conveyors, and plants of high production have installed elaborate material handling systems which make both dipping and drying completely automatic. Thousands of commodities in common use today owe much of their popularity to these attractive and long wearing surface finishes.

Steel Industry Has Healthy Future

THE American iron and steel industry involves the utilization of about 900,000 people, the payment of $1,400,000,000 in annual wages and salaries, the investment of $14,000,000,000, the mining annually of 70,000,000

tons of iron ore, 15,000,000 tons of limestone and 120,000,000 tons of coal. Production amounts to 40,000,000 gross tons of pig iron and 50,000,000 tons of steel ingots. In addition, the industry includes ownership and operation of railroads and steamship lines, production of cement, timber, coke, gas and by-products and many other activities.

These facts were laid before the American Institute of Mining and Metallurgical Engineers recently when Dr. Zay Jeffries in presenting the Howe Memorial lecture at the annual meeting discussed the future of the American Iron and steel industry. Important and pertinent portions of the lecture are to be found on Page 75 of this issue of IRON TRADE REVIEW. Although the industry appears basically well fortified against competition from either metallic or nonmetallic materials, research and development must keep pace with similar activities in other industries, the problem being to ascertain the applications in which iron or iron alloys can serve most economically. In the past, there has been some backwardness in this direction.

Dr. Jeffries expects numerous changes, some of which will exert favorable influence and others unfavorable, and he urges the industry to anticipate these effects and to accommodate itself to them. Economic conditions are considered at length, including supply and demand, distribution and rewards. Dr. Jeffries concludes:

"The iron and steel industry can help in the maintenance of good business if it on the one hand avoids price wars, and on the other aims at only a fair profit, and it may be mentioned that no profit can be considered fair which does not generally provide for the future development of the industry."

Assuming reasonable compliance with conditions, the industry can look forward to a healthy future.

Income Taxation Making Strides

INCREASING resort to income taxation by the states was referred to in last week's issue in the editorial, "Consumption Taxes Relieve Industry." Now comes the National Industrial Conference board, New York, with statistics to show that already twenty states levy an income tax, in addition to the federal government, five having adopted such a tax last year and similar legislation being considered in many other states.

Thirteen states which in 1922 collected income taxes totaling $97,000,000 had increased their revenue from this source to $183,000,000 in 1928. Increased incomes, increased population and more efficient administration of the law as well as increased rates contributed to this result. In New York, personal income tax revenues account for 6.3 per cent of all revenue, while in Massachusetts the percentage is 7.3, Wisconsin 12, Delaware 11.5 and North Carolina 7.5.

More than fifty nations of the world now levy taxes either upon business or personal incomes, the conference board points out. In the fiscal year 1926-1927, income taxation yielded 46.5 per cent of the national revenue of Great Britain, 20.7 per cent of France, 24.7 per cent of Italy, 35.2 per cent of Germany and 63.8 per cent of the United States. From the viewpoint of industry, income taxation spreads the incidence of taxation more equitably over the entire economic structure than does excessive local and state levies on real estate and improved property.

New England—a Worth-while Market

AN ABLE presentation of the New England market for iron and steel is that of Edwin Bates, of the domestic commerce division of the bureau of foreign and domestic commerce, Washington, prepared for the department of commerce's industrial survey of New England under the direction of Charles E. Artman. For sellers of iron and steel it offers an intimate picture of the broad New England market, and by indirection many market opportunities are indicated.

Of sheets of all classifications New England is now consuming 188,500 tons annually. It is recorded that less pressure has been exerted in the sale of galvanized roofing than in many other states. Consumption of plates is placed at only 60,500 tons, due largely to lean postwar shipbuilding, which now is being partly remedied. Wire products, an important item in New England's manufactures, reach 340,000 tons annually.

Bar consumption of 582,000 tons, not including 70,000 tons for reinforcing concrete, indicates the district's diversified manufacturing trade. Soft steel bar demand alone reached 440,000 tons, of which Connecticut accounts for 230,000 tons while cold drawn bars total 100,000 tons. Shipments of billets, blooms and slabs into the district are estimated at 33,000 tons.

The melt of pig iron is placed at 630,000 tons annually, of which the Troy, N. Y., and Everett, Mass., stacks are capable of supplying 350,000 tons. Textile machinery makers, taking 95,000 to 120,000 tons annually, outrank all consumers, with pipe and fitting producers second, and electrical equipment manufacturers third.

For that portion of the iron and steel industry enjoying a workable freight or water rate to New England here is a market which apparently would be responsive to intensive cultivation.

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E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Automatic Devices Simplify and Speed Up Coating of Iron and Steel Products—Page 71.

Japanning, Enameling Steel Articles

WILLIAM J. MISKELLA, author of the leading article in this issue, on practical japanning and enameling, is a consulting engineer on finishes and finishing problems. In the 23 years of his experience in this field he has written numerous textbooks on the subject. The increasing interest in the japanning and enameling of small and large products made of iron and steel is sufficient reason for presenting such an article by an authority. Mr. Miskella was graduated from Cornell university in 1905 and for five years was design engineer for the Western Electric Co., before becoming identified with one of the world's largest and most diversified finishing plants. His article deals with the subject in an elementary way, giving those who contemplate work of this kind a good idea of its requirements.

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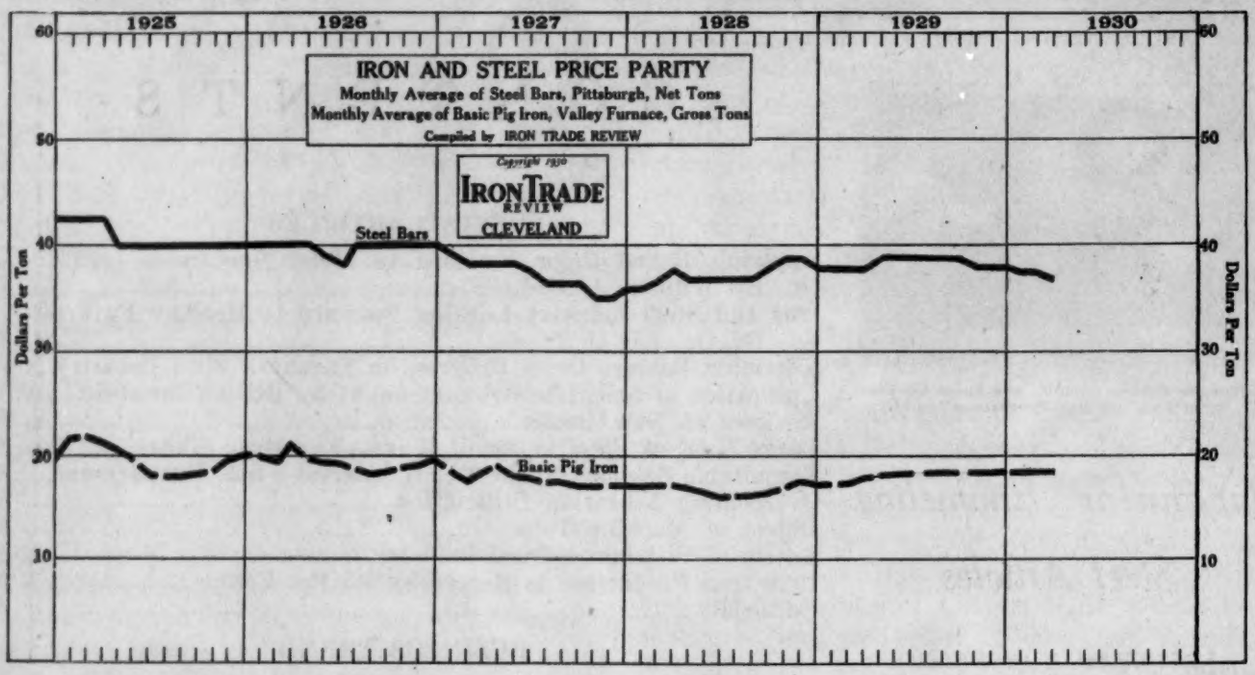
The Business Trend



Quarter Opens With Business Hopes Stimulated

BUSINESS enters the second quarter much as it entered the first three months of the year—hopeful for better times. Then, as now, it was thought that the worst of the trade recession was over. The bottom of the valley broadened beyond most expectations but some of the foothills of recovery have been climbed. Business, however, cannot yet see the peaks in the distance through continuing mists of uncertainty.

CHEAP money has fathered a strong bull movement in the stock market. The building industry shows stronger signs of improvement after a delayed start. Commodity prices appear nearer the end of their long decline, or at least they are falling less rapidly.

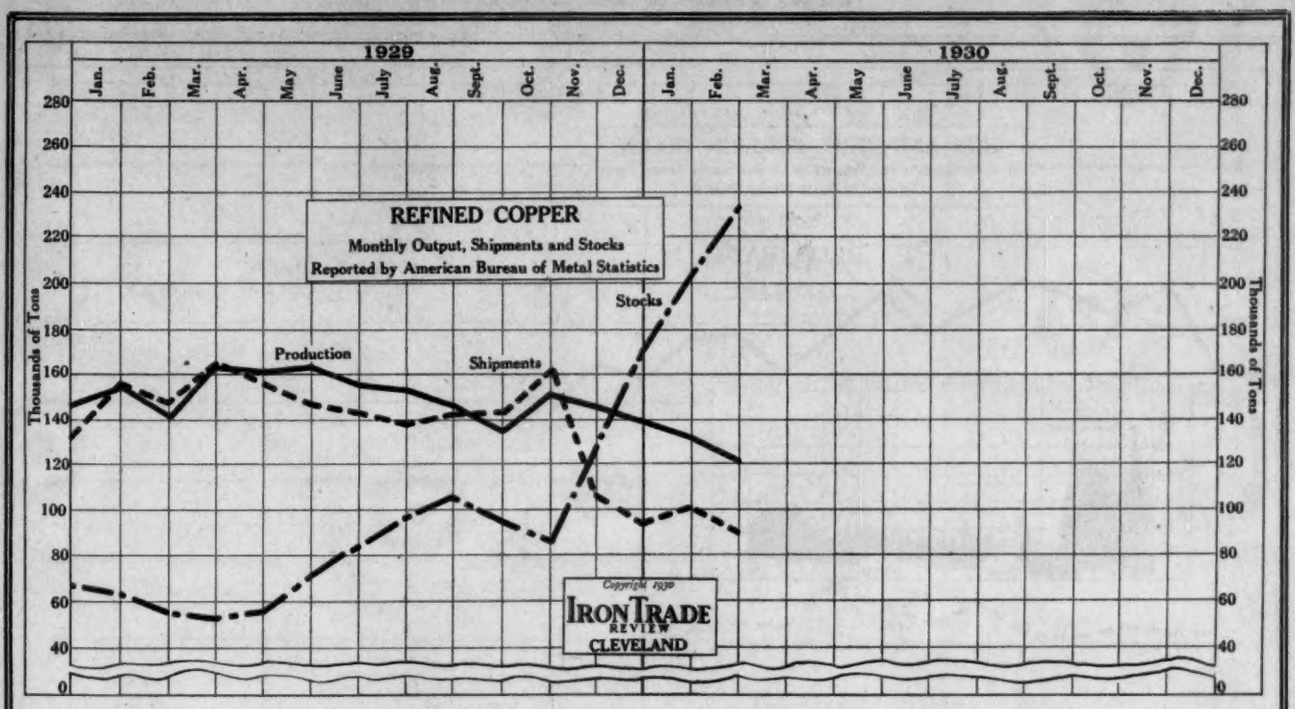
EASINESS continues in the iron and steel markets although indications here also are that declines have about run their course. The price of steel bars, long regarded as indicative of the market on finished products, sagged again during March to an average of $37.50 a ton, Pittsburgh. At 1.80c, or $36 a ton, the present minimum, steel bars are showing a price spread of $17.50 a ton compared with basic pig iron as against a spread of $20.50 one year ago. Basic iron continues to hold at $18.50, valley furnace.

STEEL demand thus far in 1930 has been restricted by reduced automotive needs which now promise to improve. One important maker of autobody sheets reports new orders last week were the heaviest for any week this year.

FURTHER favoring moderate improvement in the general business situation is the actual beginning of outdoor work on the farms, on the highways, on new buildings, on the railroads and elsewhere, relieving unemployment and increasing pay rolls and buying power. Not in many instances have wages of those now employed—a vast army—been greatly reduced.

IF THE old rule is accepted that the stock market discounts the business situation about six months in advance, the autumn months will see a sharp revival in trade and industry. Sales on the New York exchange are setting new 1930 records, exceeding five million shares daily with quotations on leading issues at new peaks for the year. Business students are inclined to watch the stock market critically, however, fearing that funds are going into Wall Street instead of into industry. Investors, nevertheless, appear to have confidence in the future after many months of an absence of confidence.

The Business Trend

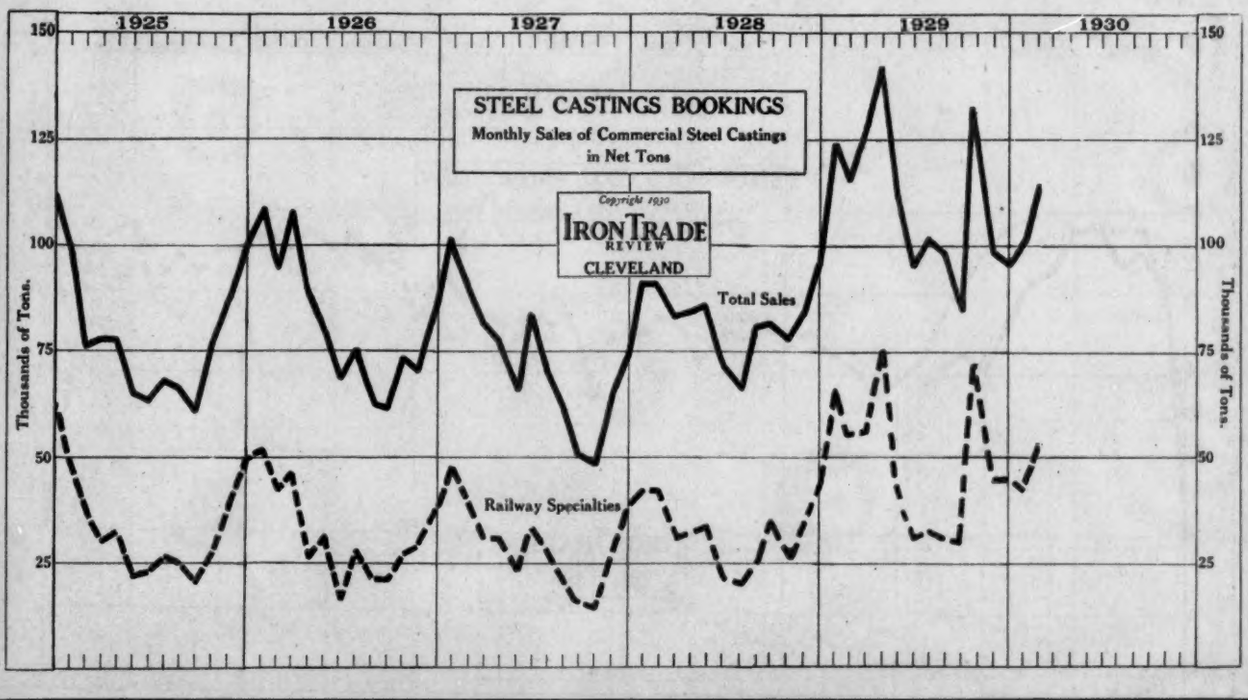


Copper Situation

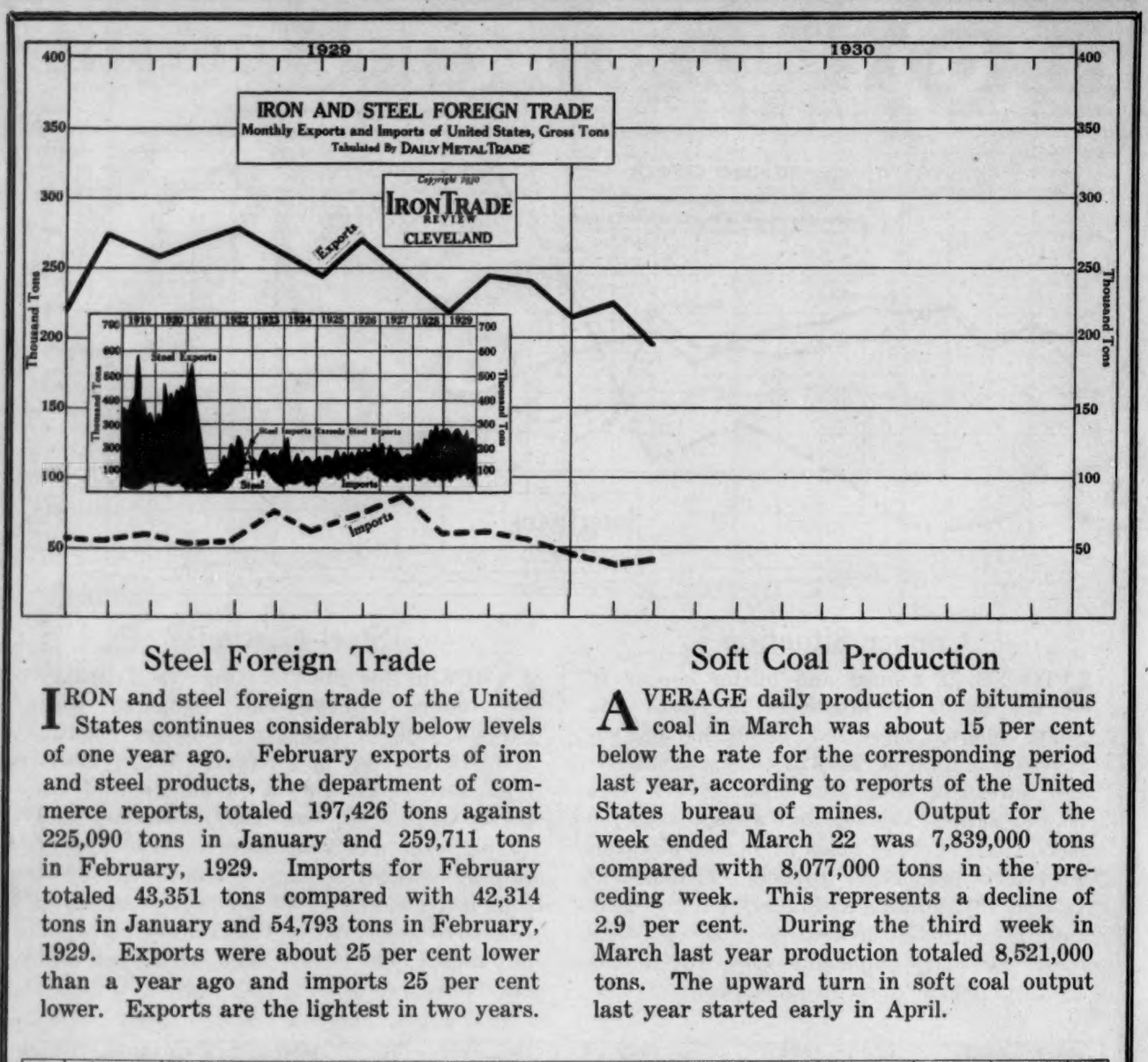
STOCKS of refined and blister copper in the hands of producers in North and South America increased 24,299 tons in February to a total of 233,123 tons, the American Bureau of Metal Statistics reports. This is the largest volume of stocks reported since 1921. Copper holds at 18.00c, however. February production totaled 121,195 tons against 132,374 tons in January but the daily rate of output increased 58 tons to 4328 tons. February shipments were 91,476 tons against 100,290 tons in January.

Steel Castings

ORDERS for steel castings in February totaled 114,664 tons compared with 101,643 tons in January, a longer month, and 115,639 tons in February, 1929. Bookings were equivalent to 79 per cent of capacity against 70 per cent in January and 79 per cent one year before. Bookings of railway specialties also increased to 53,901 tons in February, or 80 per cent of capacity, compared with 42,502 tons, or 64 per cent, in January, and 58,903 tons, or 87 per cent for February, 1929.



The Business Trend

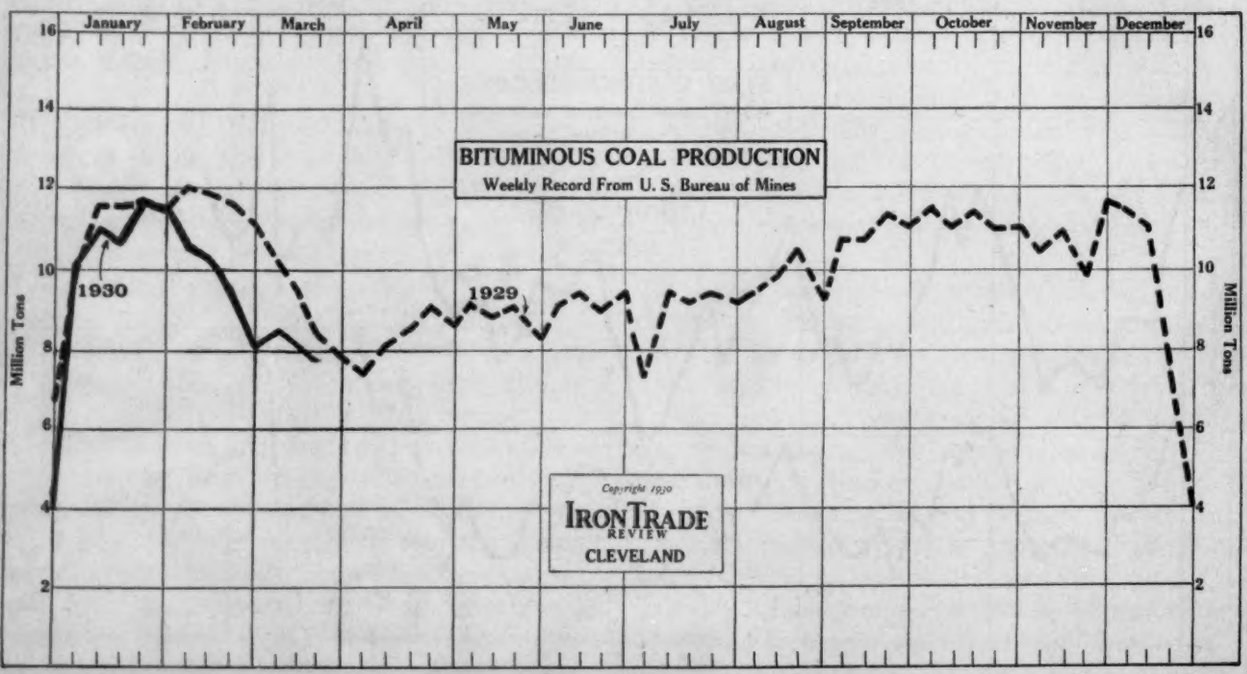


Steel Foreign Trade

IRON and steel foreign trade of the United States continues considerably below levels of one year ago. February exports of iron and steel products, the department of commerce reports, totaled 197,426 tons against 225,090 tons in January and 259,711 tons in February, 1929. Imports for February totaled 43,351 tons compared with 42,314 tons in January and 54,793 tons in February, 1929. Exports were about 25 per cent lower than a year ago and imports 25 per cent lower. Exports are the lightest in two years.

Soft Coal Production

AVERAGE daily production of bituminous coal in March was about 15 per cent below the rate for the corresponding period last year, according to reports of the United States bureau of mines. Output for the week ended March 22 was 7,839,000 tons compared with 8,077,000 tons in the preceding week. This represents a decline of 2.9 per cent. During the third week in March last year production totaled 8,521,000 tons. The upward turn in soft coal output last year started early in April.



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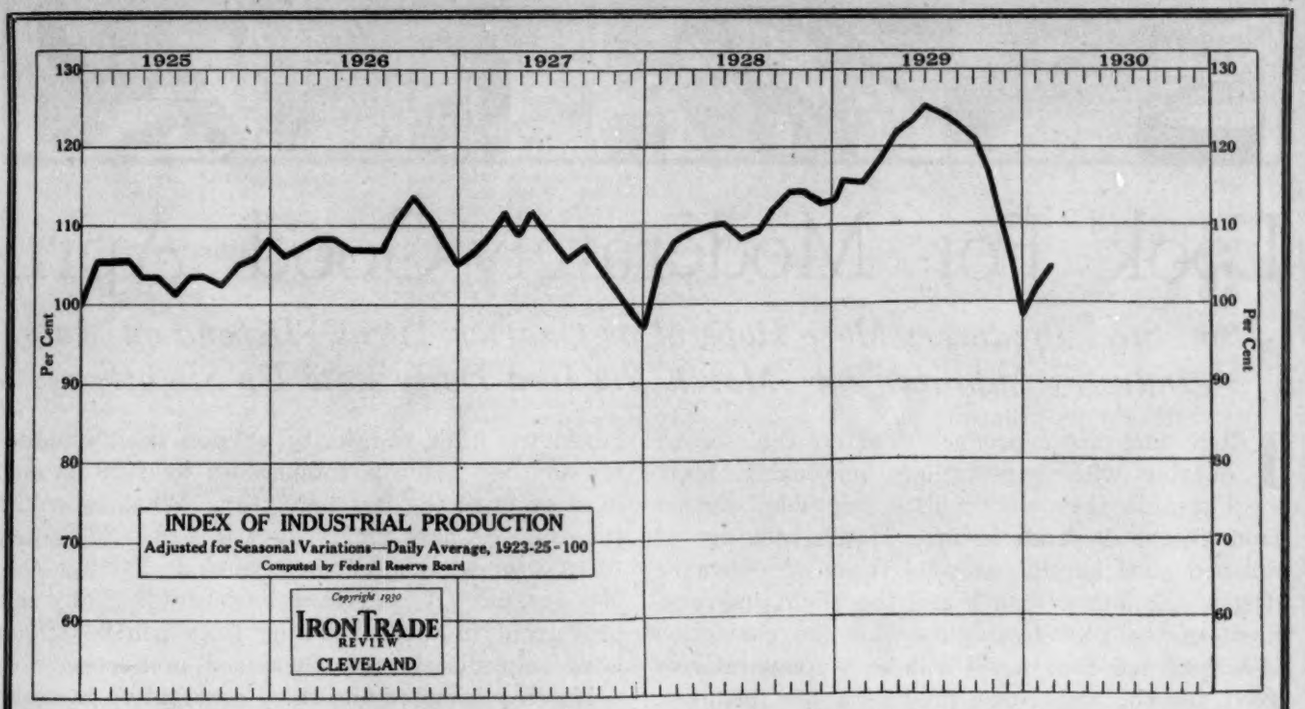
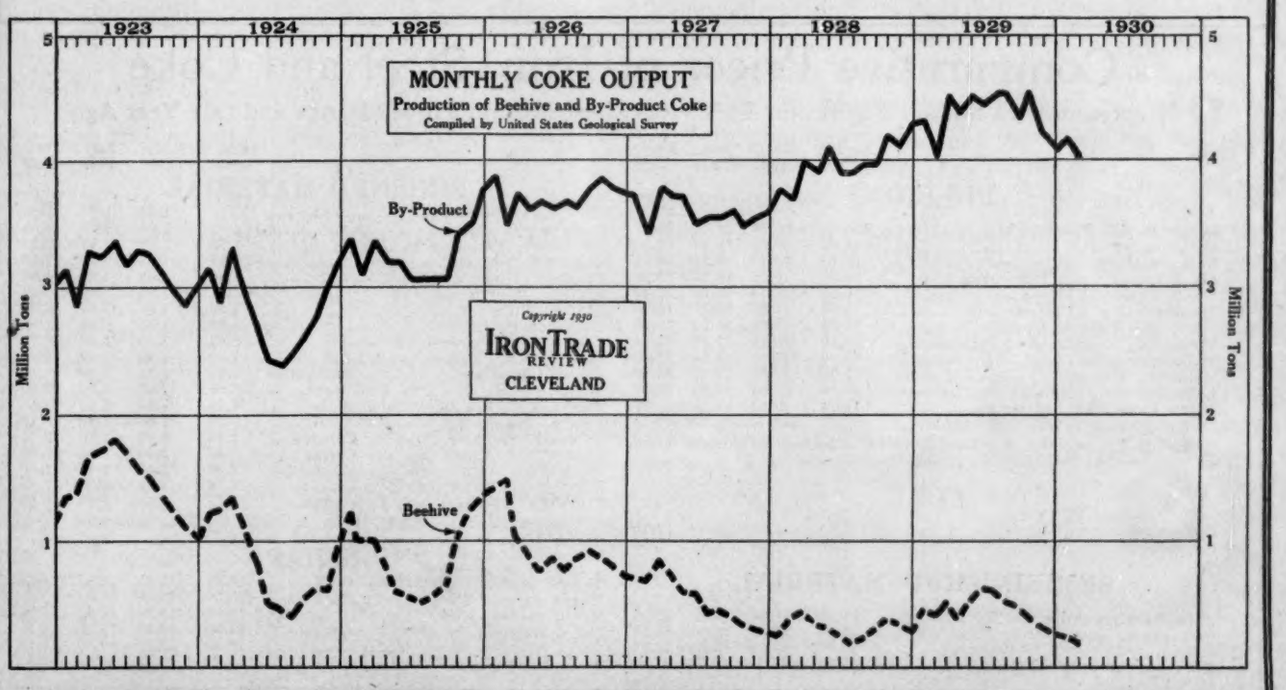


Industrial Production

INDUSTRIAL production, as measured by the federal reserve board's monthly index, is slow to expand, although the rise appears to be definitely under way following a steady decline from last June up to the beginning of 1930. The February index rose to 105 compared with 103 for January and 99 for December. Iron and steel output in February showed a greater proportionate increase than general industrial production, the month's index rising to 118 compared with 99 in January and 126 in February, 1929.

Coke Production

FEBRUARY production of coke was slightly reduced because of the short month but the rate of output increased. Average daily production of by-product coke was 143,000 tons compared with 135,344 tons in January and 146,061 tons in February. The beehive average was 11,450 tons against 11,452 tons in January and 18,342 tons in February, 1929. Output of by-product coke was 4,004,217 tons against 4,195,674 tons in January. Beehive output was 274,800 tons against 309,200 tons in January.



Look For Moderately-Good April

Iron, Steel Producers More Hopeful as Quarter Turns—Depend on Auto Industry Improvement—March Pig Iron Daily Rate Up Slightly

IRON and steel producers enter the second quarter with expectations reasonably high. For this they derive little tangible support from recent demand; in fact, March bookings of finished steel barely exceeded those of February despite the longer month and the slight improvement of the past fortnight. But the conviction is widespread that April will be a comparatively good month, and some producers are planning moderately heavier schedules.

See Demand for Cars, Autos, Ships

Some acceleration in automotive production this month is regarded as certain. Resumption of outdoor work, particularly building and highway construction, will be helpful. New shipping to the extent of 247,000 tons, requiring about 100,000 tons of steel, is assured by recent ocean mail contracts, and early action on a portion is in prospect. Freight car inquiry has expanded mildly, and a quickening of the general manufacturing trade is indicated.

It is emphasized that expectations are not keyed too high. Majority opinion in the industry is that activity comparable to 1929 is not in store until the last half year. What is looked for over the next ninety days is a showing equal to 1928, or what might be termed an average second quarter. It is certain, however, that any improvement in the consuming lines will be translated immediately into increased production.

March registered the third consecutive increase in the daily rate of pig iron production since December, the low point of the 1929 decline, but evidencing the cautious policy of both producers and consumers, the gain was only 3.9 per cent. The March rate of 105,520 gross tons daily compares with 101,640 tons in February, 91,573 tons in January and 119,662 tons in March, 1929. Excepting 1928, last month's daily average was the lowest for any March since 1922.

Net Gain in Active Stacks Four

March's total of 3,271,122 tons of pig iron contrasts with 2,845,937 tons in February and 3,709,518 tons last March. First-quarter production

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	April 2 1930	March 1930	Jan. 1930	April 1929
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.76	20.26
Basic, valley	18.50	18.50	18.50	18.00
Basic, eastern, del eastern Pa.	18.80	18.80	19.20	20.25
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.76	19.86
No. 2 foundry, Chicago	19.50	19.50	20.00	20.00
*Southern No. 2, Birmingham	15.00	14.50	14.70	15.50
**No. 2X, Virginia Furnace	18.25	18.25	18.25	20.75
**No. 2X, Eastern del. Philadelphia	20.76	20.76	21.56	22.26
Malleable, valley	19.00	19.00	19.00	18.50
Malleable, Chicago	19.50	19.50	20.00	20.00
Lake Superior, charcoal, del. Chicago	27.04	25.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.13	19.36
Ferromanganese, del. Pittsburgh	103.79	103.79	104.79	109.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $13 to $14, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.60	2.60	2.55	2.75
Connellsville foundry, ovens	3.50	3.50	3.50	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	33.00	33.00	33.80	35.00
Sheet bars, open-hearth, Pittsburgh	33.00	33.00	33.80	35.25
Billets, open-hearth, Pittsburgh	33.00	33.00	33.80	34.50
Wire rods, Pittsburgh	38.00	38.00	40.00	42.00

	April 2 1930	March 1930	Jan. 1930	April 1929
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.85	1.85	1.90	1.95
Steel bars, Chicago	1.90	1.90	2.00	2.05
Steel bars, Philadelphia	2.12	2.12	2.17	2.27
Iron bars, Chicago	1.95	1.95	2.00	2.05
Shapes, Pittsburgh	1.80	1.80	1.90	1.95
Shapes, Philadelphia	1.81	1.81	1.91	2.06
Shapes, Chicago	1.90	1.90	2.00	2.05
Tank plates, Pittsburgh	1.80	1.85	1.90	1.95
Tank plates, Philadelphia	2.00	2.00	2.05	2.15
Tank plates, Chicago	1.90	1.90	2.00	2.05
*Sheets, blue anl., No. 13, Pittsburgh	2.25	2.25	2.30	2.15
Sheets, black, No. 24, Pittsburgh	2.65	2.65	2.70	2.90
Sheets, gal., No. 24, Pittsburgh	3.30	3.30	3.35	3.65
Sheets, black, No. 24, Chicago	2.80	2.80	2.90	3.10
*Sheets, blue anl., No. 13, Chicago	2.50	2.50	2.50	2.35
Sheets, galvanized, No. 24, Chicago	3.45	3.45	3.55	3.85
Plain wire, Pittsburgh	2.40	2.40	2.40	2.50
Wire nails, Pittsburgh	2.30	2.30	2.35	2.65
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.35

*Comparison for April, 1929, is with old blue annealed base, No. 10.

SCRAP				
Heavy melting steel, Pittsburgh	16.25	16.60	16.55	18.60
Heavy melting steel, eastern Pa.	14.50	14.95	14.50	17.00
Heavy melting steel, Chicago	13.00	13.20	12.65	15.95
No. 1 wrought, eastern Pa.	15.25	15.25	15.25	16.25
No. 1 wrought, Chicago	13.50	13.50	13.40	16.65
Rails for rolling, Chicago	15.00	15.00	14.65	17.50

Current Prices for Rolled Steel Products

STEEL PLATES

Pittsburgh, base	1.80c to 1.85c
Philadelphia, del.	2.00c to 2.05c
New York, del.	2.075c to 2.125c
Boston, del.	2.165c to 2.265c
Chicago, base	1.90c to 2.00c
Cleveland, delivered	2.04c
Lackawanna, N. Y., base	1.90c to 1.95c
Birmingham, base	1.90c to 1.95c
Coatesville, Pa., base	1.90c to 1.95c
Pacific Coast, c.i.f.	2.30c
St. Louis, del.	2.17c
Detroit, del.	2.09c to 2.14c

STRUCTURAL SHAPES

Pittsburgh, base	1.80c to 1.85c
Philadelphia, del.	1.81c to 1.91c
New York, del.	2.045c to 2.145c
Boston, del.	2.165c to 2.265c
Chicago, base	1.90c to 2.00c
Cleveland, delivered	2.04c
Lackawanna, N. Y.	1.90c to 1.95c
Birmingham, base	1.90c to 1.95c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.09c to 2.14c

BARS

SOFT STEEL

Pittsburgh, base	1.80c to 1.85c
Chicago, base	1.90c to 2.00c
Birmingham, base	1.90c to 1.95c
Lackawanna, N. Y., base	1.95c to 2.00c
Pacific Coast, c.i.f.	2.35c
Cleveland base, local mills	1.80c to 1.85c
Cleveland, del., outside mills	1.85c
Philadelphia, del.	2.12c to 2.22c
New York, delivered	2.14c to 2.19c
Boston, delivered	2.165c to 2.265c
Detroit, del.	2.085c
Pittsburgh, cold finishing	1.90c to 2.00c
Pittsburgh, forging quality	2.05c to 2.10c

RAIL STEEL

Chicago Heights	1.85c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	1.95c
New York, delivered	2.07c
Philadelphia, delivered	2.07c to 2.12c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet cut lengths	2.10c
Stock lengths from mill	1.85c
Chicago, billet, 30 tons and over	2.00c
Under 30 tons	2.40c
Chicago, rail steel	1.75c
Road and bridge work	1.75c
Philadelphia, cut lengths	2.42c to 2.62c

CORROSION, HEAT RESISTANT ALLOYS

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets....35.00c; plates....31.00c; bars....28.00c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	22c	23.5c	26c	31c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.65c
Detroit, delivered	2.84c
Philadelphia, delivered	2.97c to 3.07c
Gary, Indiana Harbor	2.75c to 2.85c
Chicago, delivered	2.80c to 2.90c
Birmingham, base	2.80c
St. Louis, del.	3.07c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.80c to 2.90c
Gary, base	2.95c to 3.05c

GALVANIZED NO. 24

Pittsburgh, base	3.30c
Philadelphia, delivered	3.62c to 3.72c
Gary, Indiana Harbor	3.40c to 3.50c
Chicago, delivered	3.45c to 3.55c
Birmingham, base	3.45c
St. Louis, del.	3.72c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base	2.25c
Chicago, district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.57c
Philadelphia, delivered	2.57c to 2.67c
Birmingham	2.40c

BLUE ANNEALED PLATES, NO. 9-10

Pittsburgh, base	2.10c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.42c to 2.52c
St. Louis, delivered	2.42c
Birmingham	2.25c

AUTOMOBILE NO. 20

Pittsburgh, base	3.80c
Detroit, delivered	4.09c

FURNITURE NO. 24

Pittsburgh	3.90c

(Turn to the following page)

stands at 8,955,810 tons, compared with 10,360,922 tons in the opening quarter of 1929. At the close of March 183 stacks of the country's 314 were in blast, an increase of four over Feb. 28.

From the conservative character of current buying it is evident that large consumers do not yet regard the steel price situation as being stabilized. The $4 per ton reduction by the National Tube Co. in oil line pipe, standard black and galvanized pipe and oil well goods came as a surprise. Efforts to obtain the $2 advance on most sheet steel grades have been fruitless. Large buyers continue to win concessions in heavy finished steel. Scrap continues soft. Largely on account of the decline in pipe, the IRON TRADE REVIEW composite has fallen 28 cents this week to $34.57, the lowest since March, 1922.

Large Freight Car Inquiries Loom

Actual fresh freight car inquiry is less than 1000 units, including 500 by the Minneapolis & St. Louis and 250 by the Missouri-Kansas-Texas. but the Illinois Central is committed to the purchase of 2321 cars, the New York Central is said to be considering 10,000, the Erie and Pere Marquette a like number and the Pennsylvania 6000. The Van Sweringen group has bought 91 coaches. Including 35,000 tons for a Montana-Dakota line, the A. O. Smith Corp., Milwaukee, has booked almost 130,000 tons of line pipe in the past three weeks. Municipal buying of cast iron pipe is expanding, New York City having closed on 8900 tons. New York continues the most active structural steel market, inquiry there including 24,000 tons for subways and a tunnel, to be closed this month, and 30,000 tons for an elevated roadway which may mature next month. This week's structural lettings of 25,617 tons compare with 26,426 tons last week and 44,717 tons a year ago. For 1930 to date structural lettings total 450,765 tons, against 543,134 last year.

Iron Ore Prices Reaffirmed for 1930

Last year's iron ore prices, based on $4.50 for Mesabi nonbessemer at lower lake ports, apply to 441,000 tons on which the Ford Motor Co. has closed. In 1929 the Ford company bought 360,000 tons and in 1928, 400,000 tons, the variations being due in part to production at Ford mines. Other contracts are being closed.

Steelworks operations continue to evidence a slightly stronger tone. Youngstown mills are at 68 per cent this week, against 65 last, while Buffalo operations advanced from 74 per cent last week to 77 this week. Cleveland is off slightly, from 76 last week to 74. Common black and galvanized sheet mills of independent producers this week average 85 per cent, with jobbing mills at 80 and full-finished at 71—the highest rates, generally, since the stock market collapse last fall. Steel corporation subsidiaries this week average 83 per cent, against 80 last week, and with independent producers at 69 per cent give the industry a rate of 76.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (April 2, 1930)	$34.57
Last week (March 26, 1930)	34.85
One month ago (March, 1930)	34.95
Three months ago (January, 1930)	35.56
One year ago (April, 1929)	36.81
Ten years ago (April, 1920)	67.49
Fifteen years ago (April, 1915)	22.66

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted on Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	1.80c to 1.90c
Delivered Detroit	2.09c
Hot strip 6 1/8 to 24-in., Pitts.	1.70c to 1.80c
Delivered Detroit	1.99c
Hot strip, bands 6 in. and under, Chicago	2.00c
Do. 6 1/8 to 24	1.90c
Cooperage stocks, Pittsburgh	2.00c to 2.10c
Do, Chicago	2.10c to 2.20c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 tons and over)	2.55c to 2.65c
Delivered, Detroit	2.785c to 2.885c
Worcester, Mass. (3 tons and over)	2.80c to 2.90c

ALLOY STEEL

Hot Rolled—F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differentials	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 125-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds, squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same prices per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Bars, drawn or rolled, Pitts., Chi., Buffalo, and Cleve. c.l.	2.10c
Do, delivered, Detroit	2.335c
Shafting (turned, polished) Pittsburgh, Buffalo	2.10c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland base
(Per 100 pound keg)
(To Merchant Trade)

Standard wire nails	$2.30 to 2.40
Cement coated nails	2.30 to 2.40
Galvanized nails	4.30 to 4.40
(Per pound)	
Polished staples	2.75c to 2.85c
Galvanized staples	3.00c to 3.10c
Barbed wire, galvanized	2.95c to 3.05c
Annealed fence wire	2.45c to 2.55c
Galvanized wire	2.90c to 3.00c

Anderson, Ind., $1 higher. Chicago $2 higher, Duluth, Birmingham $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Bright plain wire, 6 to 9 gage	2.40c
Spring wire	3.40c
Wire, delivered Detroit	2.535c
Nails, delivered Detroit	$2.535

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland base on products made there; Duluth $2 higher; Fairfield, Ala., $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, c.l., f.o.b. mills	2.55c
Cut nails, l.c.l., f.o.b. mills	2.65c
Sheet piling, base, Pittsburgh	2.10c to 2.20c

Chain proof BB and BBB, Pitts.

3/16-in. to ½-in.	33 1/3 and 5 off
9/16-in to 1½-in.	33 1/3 off

CAST IRON WATER PIPE

Class B Pipe—Per Net Ton

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	38.50 to 40.50
Four-inch, New York	41.50 to 42.50
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE; TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	3.90c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, l.c.l., Chicago dist.	$6.80 to 6.90 off
Wrought, c.l., Chicago	$7.00 to 7.10 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$25.00 to 29.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, mills	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, mills	$41.50

BOLTS AND NUTS

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927. Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts.-Cleve.	3.10c
Structural, c.l., Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED STEEL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30
Chicago	35.00
Forging, Chicago	40.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$33.00
Youngstown	33.00
Cleveland	33.00
Chicago	35.00

SLABS

Pitts., Young.	$33.00
Cleveland	33.00

WIRE RODS

Pittsburgh, Cleveland	$38.00
Chicago	39.00

SKELP

All grades, Pittsburgh	1.80c to 1.85c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	9.00 to 10.00
Copper-free low phos. 58-65%	nominal

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 10-12% maganese	11.00 to 11.50
North African low phosphorus	12.50
Swedish basic, 65%	9.50 to 10.50
Swedish low phosphorus	12.00
Spanish and North African basic, 50 to 6% (nominal)	11.50 to 12.00
Newfoundland foundry, 55%	9.00
Tungsten future, short ton unit, duty paid	14.50
Chrome ore, 48%, net ton c.i.f.	$22.50

MANGANESE ORE

Prices, not including duty, are cents per unit; cargo lots.

Caucasian (52-55 per cent)	30 to 32 cents
Indian (48-50 per cent)	29 to 32 cents
Brazilian (46-48 per cent)	28 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east, tide., gross ton	$19.50 to 20.50

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00
Ohio	43.00
Illinois	43.00
Kentucky	43.00
Missouri	43.00
Maryland	43.00
Georgia and Alabama	40.00 to 47.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	48.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	$40.00
Domes., Chewelah, Wash., base	22.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	$45.00

Pig Iron

Market Is Quieter and Output Is Being Curtailed in Some Districts—March Shipments Slightly Above February Rate

SHIPMENTS of pig iron in March were slightly above the February rate and some companies supplying the automotive industry report it is now taking larger tonnages. Sales for second quarter generally are below normal, especially in the Chicago district. Production in the eastern Pennsylvania district is to be further curtailed and one blast furnace at Cleveland is going out this week. Sales by Cleveland furnace companies in the past week dropped to 25,000 tons from 41,000 tons in the week preceding; New York, Pittsburgh and other districts also report a smaller volume of sales. The reduced rail and water rates from Birmingham to northern points in the East which were to expire March 31 have been extended to Sept. 30.

PITTSBURGH, April 1.—New pig iron business is dull, recent demand showing no improvement over the light activity prevailing in the past 30 days. March shipments declined slightly from the February tonnage, and backlogs remain small. Despite the restricted rate of operations furnace stocks were little reduced last month. Buying continues limited to small lots for prompt needs. The Elliott Co. closed on an inquiry for 1000 tons of foundry and malleable. The Davison Coke & Iron Co. relighted its Neville island stack March 29 and plans to blow out its Sharpsville stock soon. Prices are unchanged for the eleventh consecutive month.

Boston, April 1.—The pig iron market is quieter, with sales in the past week amounting to 2000 to 3000 tons. Some recent inquiries have not been closed. Prices are steady.

New York, April 1.—Pig iron business has dropped off, sales in the past week totaling 11,000 to 12,000 tons. General Electric Co. purchased 2500 tons for several plants. A northern New Jersey manufacturer is understood to have distributed an order for 2000 to 3000 tons among several sellers. Prices of Buffalo iron show further strength, $16, furnace, having virtually disappeared. A spread of $16.50 to $17 now appears representative.

E. W. Bliss Co., Brooklyn, N. Y., has purchased 2000 tons of foundry iron.

Buffalo, April 1.—Additional sales of 10,000 to 12,000 tons of pig iron during the past week brought the total for the last half of March up to approximately 35,000 tons. Practically all inquiry has been covered. Eastern orders made up the bulk of purchases. Buffalo sellers claim they will not shade $16.50, base, and that $17 is the eastern base for small lots. The Buffalo district base is firm at $18.50.

Philadelphia, April 1.—A Delaware river pipe plant which recently purchased 15,000 tons of foundry iron from a Birmingham furnace has canceled half of the order. Another Delaware river pipemaker has ordered 2500 tons of southern iron. A consumer in this district has bought 1000 tons of low phosphorus iron and another is inquiring for a round tonnage of this grade. Some basic tonnage is under negotiation for this district. Other requirements are small. Despite occasional shading eastern Pennsylvania foundry iron continues fairly firm at $19.50 to $20, base furnace. Eastern Pennsylvania iron production is expected to be further reduced shortly. Prices are unchanged. Birmingham pig iron rates by rail and water to northern ports have been extended to Sept. 30.

Cleveland, April 1.—The market for pig iron is quieter while shipments show an advancing tendency. The daily rate of shipments in March was substantially above that of February. Reports from the automobile industry are particularly encouraging to furnace interests here, while the current movement for automotive accounts is showing more life than at any period this year. Some of the Detroit motor-car foundries have increased production. General sales by furnace companies with headquarters in Cleveland dropped to 25,000 tons in the past week from 41,000 tons in the week preceding, many melters having covered requirements for April and second quarter. New inquiries also show a slower trend. The Otis Steel Co. is preparing the blow out of its two furnaces here for relining this week. Cleveland furnaces continue to quote $19, base, for local delivery, and $18.50 for shipment to outside competitive points. While other lake furnaces receive $20, base, occasionally for small lots for shipment in northern Indiana and Michigan, $19.50 is the more general price.

Cincinnati, April 1.—Current sales of pig iron are small and most of the second quarter requirements in this district remain unclosed. Sales during the past week aggregated 3900 tons, less than one-half being southern iron. A central Ohio melter is inquiring for 1000 tons.

Chicago, April 1.—Consumption of malleable and gray iron is showing little improvement but sales are holding to the average of the last ten days in March. Shipments in March were about 10 per cent above those in February. Sales for April delivery are good but the total for second quarter is far below normal. Furnaces now are shipping all they are making. A farm implement maker in Wisconsin will buy 2000 tons of foundry iron, for which southern sellers also are naming quotations. About 2000 tons of southern iron is on inquiry in western Michigan, and 2000 tons is active in the Chicago district. The price is holding at $19.50, base, Chicago

(*Concluded on Page* 112)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pitts.	19.63 to 20.13
Basic, del. eastern Pa.	18.80 to 19.25
Basic, Buff. fur. for local del.	18.00
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	19.50
Malleable, Buff. fur. for local del.	19.00
Malleable, del. eastern Pa.	20.26 to 22.40
Malleable, Granite City fur.	19.50
No. 1 foundry, Chicago furnace	20.00
No. 1X, Eastern, del. Phila.	21.26 to 21.76
No. 1X, Buff.. fur. for local del.	20.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	19.63 to 20.13
No. 2 plain, Buff. fur. for local del.	18.50
No. 2 foundry, Chicago furnace	19.50
No. 2 fdy., Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City	20.00
No. 2 plain, del. Phila.	20.26 to 20.76
No. 2 plain, Virginia furnace	17.75
No. 2 plain, Buffalo, del. Boston	21.41 to 21.91
No. 2 Brooklyn, Buffalo, all rail	21.41 to 21.91
No. 2, Newark, Buffalo, all rail	19.78 to 20.28
No. 2 Ala., Bir. base, local del.	14.00
No. 2 Tenn., Bir. base, local del.	15.00
No. 2 Tenn., del. Cincinnati	16.69 to 18.19
No. 2 Alabama, del. Cincinnati	16.69 to 18.19
No. 2, Alabama, del. Cleveland	19.51 to 20.51
No. 2, Alabama, del. Chicago	19.01
No. 2 Alabama, Del., St. Louis	18.42 to 18.92
No. 2 Ala., Phila., dock dely.	18.25 to 19.25
No. 2 Ala., Balt., dock dely.	18.00 to 19.00
No. 2 Ala., N. Y., dock dely.	18.50
No. 2 Ala., Boston, dock dely.	20.21
No. 2X, Brooklyn, Buffalo all rail	21.91 to 22.41
No. 2X, Newark, Buff. all rail	20.28 to 20.78
No. 2X, eastern, del. Phila.	20.76 to 21.26
No. 2X, Buffalo, fur. for loc. del.	19.00
No. 2X, Buffalo, del. Boston	21.91 to 22.41
No. 2X, Virginia furnace	18.25
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard. Phila.	24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63.00c, 76.00c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$22.60
No. 1 foundry, del. Montreal	24.00
No. 2 foundry, del. Toronto	22.10
No. 2 foundry, del. Montreal	23.50
Malleable, del. Toronto	22.60
Malleable, del. Montreal	24.00
Basic, del. Montreal	22.50

Silvery iron, Jackson county, O., furnace in per cents: 5—$22; 6—$22 to $23; 7—$23 to $24; 8—$24 to $25; 9—$25 to $26; 10—$27 to $28; 11—$29 to $30; 12—$31 to $32; 13—$33 to $34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

Coke

Production in Connellsville District Is Being Increased—Shipments and Prices Steady

PRODUCTION of beehive coke in the Connellsville district, which has been steadily reduced since January, now is being increased, following new long-term contract obligations mainly for gas producers. The market has been steadied, though few blast furnace interests have closed for future requirements. Shipments of beehive and by-product foundry coke are steady.

Pittsburgh, April 1.—The market for beehive coke is dull except for contract negotiations for both the second quarter and the 12 months beginning April 1. These are mainly for gas producers, although one blast furnace operator closed for a tonnage. Prices lower than a year ago are understood to have applied on some of the new long-term contracts. The spot market for the furnace grade is unchanged at $2.60, although demand is light. New sales of foundry coke are quiet, but shipments are steady and prices unchanged. While beehive coke production is at the lowest point since January an increase is in prospect. Three coke plants of the Oliver & Snyder Co. are scheduled to start operations shortly, while the Hillman Coal & Coke Co. is starting 160 ovens.

Production of coke in the Connellsville region for the week ended March 22 was 29,110 tons, compared with 30,000 tons for the preceding week and 78,640 tons in the same period a year ago, according to the *Connellsville Courier*.

Boston, April 1.—Coke consumers are not buying heavily for second quarter. Demand for domestic fuel has been stimulated by cold weather. Prices are steady.

New York, April 1.—Beehive furnace coke is slightly stronger, with standard grades now $2.60 to $2.75, Connellsville. Beehive foundry coke is unchanged at $3.50 to $3.75, Connellsville, and $4.85, Latrobe. Demand for both these products is moderate. Production of foundry coke has balanced consumption to a degree that has made for considerable stability in prices. By-product coke is holding at $9 to $9.40, delivered, Newark; $11, New England, and $9, Philadelphia.

Cincinnati, April 1.—Little change is noted in specifications for by-product foundry coke. Spring selling of domestic grades will gain by lower prices effective today.

St. Louis, April 1.—The daily average rate of coke shipments in March was about equal to that of February and considerably below that of March, 1929. Contracting for second and third quarter is unusually light. Prices are unchanged.

Birmingham, Ala., April 1.—Independent coke producers are operating almost at capacity and report steady shipment of their output. Competition with English coke is being met on the Pacific coast. Less than 200 by-product coke ovens in Alabama are idle.

Coke Prices

Prices Per Net Ton

Beehive Ovens	
Connellsville furnace	$2.60
Connellsville foundry	3.50 to 4.85
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Shipments Show Little Change From February Rate

New York, April 1.—Steadiness continues in spiegeleisen, with domestic material, 19 to 21 per cent, at $34, furnace, in carload lots, differentials applying to larger quantities. Specifications have shown little improvement in the past two or three weeks. Ferromanganese continues at $99, duty paid, tidewater, to users of carloads to 500 tons annually, with differentials on larger quantities.

Tungsten for future delivery is lower, nominally about $14.50, duty paid, a short ton unit. Nearby delivery still is about $15. Domestic scheelite is nominally $16.50, and well sold ahead. Other ores and special alloys are unchanged.

Pittsburgh, April 1.—Shipments of ferroalloys last month showed little change from the February rate. Ferromanganese and spiegeleisen demands were influenced by the lighter operating rates in the iron and steel industry, and business in special ferroalloys was restricted by the continued quietness in alloy steels. Ferrochrome continues the exception in this respect and makes a relatively better showing than the other products. Ferromanganese continues $103.79, delivered Pittsburgh, and spiegeleisen $34, for small lots. Ferrotungsten is quiet and unchanged.

Bolts, Nuts, Rivets

Specifications Steady, Second quarter Well Covered

NUT AND BOLT PRICES, PAGE 102

Pittsburgh, April 1.—Specifications for bolts, nuts and rivets are steady with March tonnage about equal to that of February. Second quarter contracting practically is completed, with the market unchanged at 60 to 70 off for bolts and nuts and 3.10c, Pittsburgh, for large rivets. Operations are steady at about 60 per cent.

New York, April 1.—Bolt manufacturers report little improvement, with operations continuing at about 60 per cent. The resale market here continues weak at 65 off list, the downward discount on both large and small machine bolts. The mill market on bolts and nuts continues at 60 to 70 off and on large rivets at 3.10c, Pittsburgh.

Cleveland, April 1.—Orders for nuts, bolts and rivets are being received from practically all consuming lines for immediate needs. Individual specifications are small but aggregate tonnage is enough to sustain 60 or 65 per cent operating schedules. Some automotive tonnage came through last week.

Chicago, April 1.—March shipments of bolts, nuts and rivets were about 10 per cent under March, 1929, and slightly below February, 1930. Producers are operating at 60 to 65 per cent, practically the same as in recent weeks. Prices are stable on the basis of 60 to 70 off for carriage and machine bolts.

Construction contracts in 37 states east of the Rocky mountains Jan. 1 to March 21, amounted to $955,254,700, a daily average of about 8 per cent under the comparable period in 1929.

Ferroalloy Prices

(In dollars, except Ferrochrome)

*Ferromanganese, 78 to 82 per cent tidewater, duty paid	$99.00
*Ferromanganese del. Pittsburgh	103.79
Spiegeleisen, 19 to 21 per cent, domestic furnace spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do, 75 per cent	13.00 to 15.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.40 to 1.45
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do, one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Scrap

Further Weakness and Lower Prices Appear—Supply Is Ample With Little Market Activity

SUPPORT is lacking in the Iron and Steel scrap market and prices are sagging to new lows. Almost all grades in all markets registered declines the past week and supplies are sufficient to meet all needs, which are not large. Dealers are laying down some scrap at present prices. Demand at a standstill.

Chicago, April 1.—Marketing of iron and steel scrap was at a standstill for several days last week, as the industrial district was digging its way out of a blizzard. Shipments from outside are holding up despite the general downward trend of the Chicago market. Steelworks melters are building up reserves of open-hearth scrap and are able to absorb all incoming shipments. Several thousand tons of cast borings have been sold at $10.25, about 25 cents higher than the recent level. Heavy melting steel has been established at $13 to $13.50, with a tonnage selling at the latter figure. Occasional lots of low phos scrap are being sold above the generally accepted consumer quotations. An order for railroad springs brought $18, Chicago, while the recent range has been at $17 to $17.50. Prices have been reduced for various grades of railroad scrap, including 2-foot rail ends. The St. Paul scrap list brought moderately high prices.

New York, April 1.—Weakness still dominates scrap, with dealers revising buying prices on clean cast borings to $6.50 to $7, New York, a reduction of 50 cents. This reflects buy-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 13.00
Boston, dealers	10.00 to 10.50
Buffalo, No. 1	14.00 to 14.75
Buffalo, No. 2	12.00 to 12.50
Chicago	13.00 to 13.50
Cincinnati, deal.	11.50 to 12.00
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.50 to 13.00
Detroit, No. 1 deal.	11.75 to 12.25
Detroit, No. 2 deal.	10.00 to 10.50
East Pa., del. mill	14.50
N. Y. deal R. R.	10.50
N. Y., deal. yd.	8.00 to 8.50
Pittsburgh, No. 1	16.00 to 16.50
St. Louis, No. 1 sel.	13.00 to 13.25
Federal, Ill.	12.50 to 12.75
Granite City, Ill.	11.50 to 12.00
Valleys, No. 1	16.00 to 16.50

COMPRESSED SHEETS

Buffalo (dealers)	12.00 to 12.50
Chicago	12.00 to 12.50
Cleveland	12.50 to 13.00
Detroit, dealers	11.25 to 11.75
E. Pa. new mat.	13.00 to 13.50
Pittsburgh	15.50 to 16.00
Valleys	15.50 to 16.00

BUNDLED SHEETS

Buffalo	9.50 to 10.00
Cincinnati, deal.	10.25 to 10.75
Cleveland	10.50 to 11.00
Eastern Pa.	11.50 to 12.00
Pittsburgh	14.00 to 14.50
St. Louis	9.00 to 9.50

SHEET CLIPPINGS LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Detroit, dealers	8.50 to 9.00
St. Louis	9.00 to 9.50

STEEL RAILS SHORT

Birmingham	11.00 to 12.00
Boston, dealers	9.00 to 10.30
Buffalo	17.50 to 18.00
Chicago (3 feet)	16.75 to 17.25
Chicago (2 ft.)	17.25 to 17.75
Cincinnati, deal.	17.75 to 18.25
Detroit, dealers	15.50 to 16.00
Pittsburgh, (open-hearth, 3 ft. and less)	20.00 to 20.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	10.00 to 11.00
Boston consumers	11.00 to 11.50
Buffalo	12.00 to 12.25
Chicago, net	11.00 to 11.50
Cinn., deal. net	8.50 to 9.00
Detroit, net, deal.	9.00 to 9.50
Eastern Pa.	11.00 to 11.50
N. Y., deal., mill	7.75 to 8.25
St. Louis	11.00 to 11.50

COUPLERS, SPRINGS

Buffalo	18.25 to 18.75
Chicago	15.50 to 16.00
Eastern Pa.	19.50 to 20.00
Pittsburgh	20.00 to 20.50
St. Louis	14.00 to 14.50

ANGLE BARS—STEEL

Chicago	15.00 to 15.50
St. Louis	12.50 to 13.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	18.50 to 19.00
Cleve. billet and bloom crops	17.00 to 17.50
Eastern Pa.	20.00 to 21.00
Pitts. billet and bloom crops	22.00 to 22.50
Pitts. Sheet bar crops	21.00 to 21.50

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
St. Louis	13.50 to 13.75

SHOVELING STEEL

Chicago	13.00 to 13.50
Cleveland	11.00 to 11.50
St. Louis	12.00 to 12.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	10.00 to 11.00
Buffalo, No. 1	11.50 to 12.00
Buffalo, No. 2	14.00 to 14.50
Chicago, No. 1	13.50 to 14.00
Chicago, No. 2	13.00 to 13.50
Cincinnati, No. 2	11.50 to 12.00
Eastern Pa.	15.00 to 15.50
N. Y., No. 1 deal.	11.75 to 12.00
Pittsburgh, No. 2	16.00 to 16.50
St. Louis, No. 1	11.25 to 11.75
St. Louis, No. 2	12.50 to 12.75

SPECIFICATION PIPE

Boston	8.75 to 9.00
Eastern Pa.	13.50 to 14.00
New York, deal.	9.25 to 9.75

BUSHELING

Buffalo, No. 1	12.50 to 13.00
Chicago, No. 1	11.00 to 11.50
Cinn., No. 1 deal.	10.00 to 10.50
Cinn., No. 2	6.50 to 7.00
Cleveland, No. 2	9.50 to 10.00
Detroit, No. 1 new deal.	10.50 to 11.00
St. Louis, No. 1	9.50 to 10.00
Valleys, new No. 1	15.00 to 15.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston, dealers	6.00 to 6.25
Buffalo	9.25 to 9.75
Chicago	7.50 to 8.00
Cincinnati, deal.	7.75 to 8.25
Cleveland	8.50 to 9.00
Detroit	7.25 to 7.75
Eastern Pa.	11.00
New York, deal.	7.00
Pittsburgh	11.00 to 11.50
St. Louis	6.75 to 7.25
Valleys	11.25 to 11.75

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.25 to 6.00
Buffalo	11.00 to 11.50
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.75 to 10.25
Detroit, dealers	8.00 to 8.50
Eastern Pa.	11.00
New York, deal.	6.50
Pittsburgh	11.00 to 11.50

CAST IRON BORINGS

Birmingham, chem.	12.00 to 13.00
Birmingham, plain	7.00 to 8.00
Boston, chem.	8.50 to 9.00
Boston, dealers	5.50 to 6.00
Buffalo	11.00 to 11.50
Chicago	9.75 to 10.25
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.75 to 10.25
Detroit, dealers	8.00 to 8.50
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.00
New York, deal.	6.50 to 7.00
Pittsburgh	11.00 to 11.50
St. Louis	9.50 to 9.75

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	11.00 to 11.50
Chicago, net	10.75 to 11.25
Cincinnati,	9.00 to 9.50
Eastern Pa.	11.50
New York, deal.	7.75 to 8.25
St. Louis	11.50 to 12.00

FORGE FLASHINGS

Boston, dealers	8.50 to 9.00
Buffalo	12.50 to 12.75
Cleve. over 10 in.	11.25 to 11.75
Detroit	10.50 to 11.00

FORGE SCRAP

Boston, dealers	8.00 to 8.50
Chicago	17.00 to 17.50
Eastern Pa.	13.50 to 14.00

ARCH BARS AND TRANSOMS

Chicago, net	16.75 to 17.25
St. Louis	19.50 to 20.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	13.50 to 14.00
Chicago steelworks	10.75 to 11.25
Cleveland	12.00 to 12.50
Eastern Pa.	13.50
Pittsburgh	14.00 to 14.50
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	14.00 to 15.00
Boston, ship point	15.50 to 16.00
Buffalo	17.50 to 18.00
Chicago	17.90 to 18.50
Eastern Pa.	20.00 to 21.00
Pittsburgh	20.50 to 21.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.50
Chicago	16.25 to 16.80
Eastern Pa.	19.00
New York, deal.	14.00 to 14.50
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	18.00 to 18.50
Chicago, iron	14.50 to 15.00
Chi., rolled steel	17.00 to 17.50
Cincinnati	12.00 to 12.50
N. Y., iron, deal.	10.50 to 11.00
Pittsburgh, iron	14.50 to 15.00
Pittsburgh, steel	20.00 to 20.50
St. Louis, iron	13.75 to 14.25
St. Louis, steel	16.00 to 16.50

NO. 1 CAST SCRAP

Birmingham, cup.	10.00 to 11.00
Buffalo	13.50 to 14.00
Boston, textile	13.00 to 13.50
Chicago, mach.	15.70 to 16.25
Chicago, railroad	14.60 to 15.10
Chicago, agri.	13.15 to 13.70
Cincinnati, mach. cupolas, gross	18.25 to 18.75
Cleveland, cupola	14.50 to 15.00
Detroit, net deal.	10.50 to 11.00
East Pa. cupola	15.50 to 16.00
N. Y. cup. deal.	10.85
N. Y., del. local foundries	15.00
Pittsburgh, cupola	15.00 to 16.00
San Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	14.50 to 15.00
St. Louis, No. 1	13.50 to 14.00

HEAVY CAST

Boston	10.50 to 11.00
Boston, mach. cast.	14.50 to 15.25
Buffalo, breakable	10.00 to 10.50
Cleve., breakable	10.50 to 11.00
Detroit, auto, net Dealers	12.00 to 12.50
Detroit, break. deal	8.00 to 8.50
Eastern Pa.	14.00
New York, deal.	9.75 to 10.50
Pittsburgh	12.00 to 12.50

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	17.00 to 17.50
Chicago, agri.	14.75 to 15.25
Chicago, railroad	16.50 to 17.00
Cinn., R. R. deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	17.00 to 17.50
Detroit auto deal.	14.75 to 15.25
St. Louis, rail	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Boston	10.75 to 11.00
Buffalo	14.00 to 14.50
Chicago	15.00 to 15.50
Eastern Pa.	15.00
New York	10.50 to 11.00
St. Louis	14.00 to 14.50

LOCOMOTIVE TIRES

Chicago, cut	17.00 to 17.50
St. Louis No. 1	13.75 to 14.25

LOW PHOS. PUNCHINGS

Chicago	15.00 to 15.50
Pittsburgh	18.50 to 19.50

ing by dealers of blast furnace borings and turnings for Coatesville, Pa., and Sparrows Point, Md., at $9.75 to $10, delivered, a reduction of 50 to 75 cents a ton under purchases for those points some time ago. Dealers also are buying against a recent order for 1000 tons of yard steel for Phoenixville, Pa., at $11, delivered.

Boston, April 1.—The situation in scrap remains uninteresting. Prices advance on the slightest buying and then yield. Pennsylvania or local mills and foundries are taking little. Another export cargo of several thousand tons will leave here for Danzig in the next fortnight.

Buffalo, April 1.—No new orders for scrap are in prospect. Dealers have reduced offers about 25 cents a ton, in some instances more. Consumption is larger but there also is prospect of largely increased receipts as lake navigation may open here by April 15.

Philadelphia, April 1.—Iron and steel scrap is quiet and unchanged.

Pittsburgh, April 1.—Iron and steel scrap is quieter, influenced by the usual lull before closing of monthly railroad lists. Prices are easier, due to general absence of mill buying for several weeks, with several grades quotably lower. Heavy melting steel is off nominally at $16 to $16.50. Low phosphorus grades and blast furnace scrap are easier. The Baltimore & Ohio railroad is closing on 11,000 tons of scrap, including 2500 tons of heavy melting steel.

Cleveland, April 1.—Continued inactivity and further stop orders have brought about additional price declines of 25 to 50 cents. The Cleveland consumer of cast iron borings and short turnings has cut off shipments entirely as has the one at Toledo. Specifications have been further reduced on heavy melting steel. Rejections by the largest consumer have been frequent. No. 1 steel is now quoted $13.25 to $13.75 and No. 2 at $12.50 to $13. An offer of $8.50 for machine shop turnings by a mill has been turned down. Dealers, however, are laying down turnings at this price. Considerable distress scrap has been appearing which has not been readily absorbed.

Cincinnati, April 1.—Prolonged dull demand for iron and steel scrap is reflected in lower quotations, heavy melting steel and No. 2 railroad wrought declining 50 cents to $11.50 to $12. Borings and turning, grate bars and stove plate were reduced similarly.

Detroit, April 1.—Blast furnace and cast iron grades of scrap are weak but heavy melting steel and compressed sheets for open-hearth use are steady. Several grades have declined 25 to 50 cents per ton. Prices seem destined to remain low for a further period, but renewed demand is expected to develop shortly.

St. Louis, April 1.—Demand for iron and steel scrap is spotty, but with most grades quiet. Rolling mill grades are in demand and firm, relatively, and some steel items are bringing steady prices.

No large sales have been reported. Numerous small tonnages have been placed and in most instances for spot delivery. This condition is construed as meaning scant reserve stocks.

Birmingham, Ala., April 1.—Consumers of iron and steel scrap are buying lightly and frequently. Slow markets and low prices rule. Heavy melting steel still is quoted at $10.50 to $13.

Toronto, Ont., April 1.—Demand for iron and steel scrap was somewhat sluggish during the week. Some future business was closed, but buying is mostly by larger consumers. Inquiries are appearing which indicate others are about to fall in line. Hand-to-mouth buyers are coming into the market and maintaining a steady spot demand in small quantities. Prices are unchanged.

Canadian Scrap

Dealers Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$19.00
Steel axles	17.00
Car wheels	14.50
Stove plate	12.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.00
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	11.50

Semifinished Steel

New Contracting Is Slow, at Unchanged Prices

SEMIFINISHED STEEL PRICES, PAGE 102

Pittsburgh, April 1.—The semifinished market reflects the restricted activity in most finished steel lines. Demand is confined to spot orders for small lots, with aggregate tonnage holding at the light rate of the past 30 days. Second quarter contracting is slow, with the market generally unchanged at $33 for 4x4-inch rerolling billets, sheet bars and slabs. Wire rods are steady at $38, with activity only fair. Skelp remains dull, with the market slightly easier at 1.80c to 1.85c, Pittsburgh.

Cleveland, April 1.—Shipments on second quarter contracts are being made by the leading merchant producer of semifinished steel. Specifications are holding to the March rate, and this producer continues to operate 11 of its 14 open-hearths. New business is quiet. Material is being billed at $33, base, Cleveland or Youngstown, for sheet bars, billets and slabs.

Chicago, April 1.—Consumers of semifinished steel are taking material for second quarter on moderately heavy commitments. In the absence of active buying in the open market quotations are reported as nominal at $35 for sheet bars and also for commercial or rerolling billets, 4 x 4-inch base. Forging billets are $40, base, Chicago.

Operating Rates

General Average Up—Cleveland Off—Rise at Youngstown, Buffalo

Pittsburgh—Steelmaking holds at 75 per cent. Finishing mill schedules are steady with sheet and tin plate production continuing 75 and 85, respectively. Strip output is higher at 55 to 65 with pipe mills continuing at 40.

Chicago—Steelworks operations are unchanged at 90 to 95 per cent, compared with 98 a year ago. Twenty-six of the 36 steelworks blast furnaces in the district are in operation.

Buffalo—Steelworks are operating at 77 per cent. This is the highest rate this year. Steelworks executives think this rate, or one near it, will prevail in April if demand holds its present and anticipated strength. But for light buying of automotive steel the rate would be in excess of 80, according to producers.

Youngstown, O.—An improvement in the general average is noted in 68 per cent this week, from 65 last. Thirty-two of 51 independent open hearths are pouring, a gain of five, mostly in the Republic plants. Bessemer output is about 70. Corporation steel plants are maintaining their steady operations between 65 and 70. Sheets reflect better automotive buying with 92 of 120 units active, a gain of seven mills. Strip is at 75 per cent, gaining five points. Tin plate for independents is at 90, that of the Corporation at 75. Bar output of the independents is 65 with Corporation output at 75. Pipe production is unchanged at 55, mostly in butt-weld pipe.

Cleveland—Steelworks are producing at 74 per cent for this week, an easing off of two points. Changes in rates of three of the four producers here, place a total of 25 of the district's 34 open hearths going. The leading interest locally is unchanged with 11 steelworks units on, and all four of its stacks in blast. One blast furnace of another company will be blown out this week for relining.

Page-Hersey To Build

Buffalo, April 1.—Page-Hersey Tubes Ltd., 100 Church street, Toronto, Ont., is planning construction of a large steel seamless tube plant at Crowland, Ont., 20 miles from here. Plans are at an advanced stage and construction may start in the early spring. The unit would have a production of 50,000 tons of tubing annually and employ 500 men.

Capital expenditures made by the Class I railroads in 1929 for new equipment and additions and betterments to property used in transportation service totaled $853,721,000, according to complete reports.

The Market Section

Bars

Sales, Now at Average of Recent Years, Indicate An Increase in Second Quarter—Prices Steady

LESS balance among steel bar consumers is noted, but total tonnage is fairly well up to the mark of 1929, with promise of second quarter needs increasing. Deliveries are deferred somewhat. Most buying is for immediate shipment and in small lots. Prices are fairly steady at prevailing levels, though weakness persists at some points. Production is steady.

BAR PRICES, PAGE 101

Chicago, April 1.—Brighter prospects for railroad equipment and pipe line tonnage during the greater part of the second quarter, in addition to sustained demand for implement steel, provide an improved tone to the bar and other finished steel markets. One producing interest reports specifications practically equal to shipments, and shipping orders last week the second highest this year. Buying for the most part is for immediate consumption. Sales compare favorably with the average 1929 weekly totals, but distribution is less balanced among industrial groups. Railroad equipment departments and plate mills now are benefitting more from increased tonnage, while bar mills feel the pinch of lean automotive tonnage. Steel bar deliveries are two to six weeks. First quarter bookings were close to the average of recent years, but are under last year's volume. In view of the all-time record bookings during second quarter last year, it is indicated that orders for the next three months will be light in comparison. No decrease is reported in car-building specifications, and implement and tractor tonnage is a leading feature of finished steel buying. Soft steel bar prices for second quarter are not well defined. It is reported 1.95c, Chicago, is maintained against competition in some of the outlying consuming points, but the range of 1.90c to 2.00c, Chicago, has become more general.

New York, April 1.—The steel bar market here is easier, with the prevailing spread now 1.80c to 1.85c, base, Pittsburgh or 2.14c to 2.19c, New York. Demand is moderate, with deliveries two to three weeks. Iron bars also are easier, now holding at 2.09c, New York.

Pittsburgh, April 1.—Bar demand is steady, with incoming business mostly small individual orders. March tonnage approximated that of February although prospects are regarded as favorable for improvement during April. Prices are steady with most orders at 1.85c, Pittsburgh, although 1.80c continues to be heard on larger tonnages.

Cleveland, April 1. — Producers' hopes for improved bar demand have been only moderately fulfilled. Automotive buying is slightly better, but below expectations. Any improvement in the automotive situation will be reflected immediately at the mills. The most general soft steel bar price is 1.85c, base, Cleveland, but some 1.80c, Cleveland, business is reported placed occasionally.

Philadelphia, April 1.—Steel bar specifications are fair but not maintained at the improved rate reported a week or two ago. The market is generally 1.80c to 1.85c, base, Pittsburgh.

Williams Tool Co., Erie, Pa., has been granted a refund by the bureau of internal revenue amounting to $21,456.37 for the fiscal year ended June 30, 1920, as an overassessment of income and profits taxes.

Institute Papers Named

Seven technical papers will be presented at the spring meeting of the American Iron and Steel institute to be held at the Commodore hotel, New York, May 9. The papers as announced by the institute are as follows:

"Contribution of Science to the Iron and Steel Industry," by A. D. Little, president, Arthur D. Little Inc., Cambridge, Mass.

"Some Comments on Steel Specifications," by Dr. John Johnston, director of research, United States Steel Corp., New York.

"Utilization of Waste Heat in the Steel Industry," by Charles W. E. Clarke, consulting engineer, United Engineers & Constructors Inc., Philadelphia.

"Steel Plant Lubrication," by W. A. James, chief engineer, Lackawanna plant, Bethlehem Steel Co., Lackawanna, N. Y.

"Steel Frame Houses," by L. H. Miller, chief engineer, American Institute of Steel Construction, Cleveland.

"Chromium Steels," by Dr. F. M. Becket, vice president and chief metallurgist, Electro Metallurgical Co., New York.

"Recent Developments in Nickel Steel," by Charles McKnight, metallurgist, International Nickel Co., New York.

Plates

Demand Is Improved Slightly—Gas Line Award Takes 35,000 Tons—Barge Work Increases

PLATE business shows more activity. Chicago district mills will benefit from the award of a 281-mile Montana-Dakota gas line, requiring 35,000 tons of plates, to a Milwaukee Fabricator. Deliveries are becoming more extended. Fifty barges awarded in the Pittsburgh district will take 5300 tons of steel, mainly plates. Another order for 50 is pending. Prices are steady.

PLATE PRICES, PAGE 101

Chicago, April 1.—Another tonnage of pipe line work is marked for Chicago district plate mills through the award to A. O. Smith Corp., Milwaukee, of 281 miles of gas line for the Montana-Dakota Power & Light Co. This line will be laid through the states mentioned and will total about 35,000 tons. The project and two others, the 600-mile Moody-Seagrave line, and the 192-mile Pure Oil Co. line, comprise about 130,000 tons let in three weeks, the awards amounting to about $10,000,000. As a result of heavier pipe line shipments, plate mill deliveries have been extended to a range of three to five weeks. Plate inquiries for oil refinery work total 25,000 to 30,000 tons, but no new orders have been placed. A western fabricator is inquiring for 500 tons for a tow boat. Plate prices for second quarter are unsettled, the range generally based on 1.90c, Chicago.

Pittsburgh, April 1.—Plate demand is steady but lacks improvement over the rate of 30 days ago. Barge business is more active, with 5300 tons of plates and shapes required for an award of 50 barges by the Standard Unit Navigation Co. Early action is expected on 30 barges requiring 4000 tons of steel for the Callahan Construction Co., St. Louis. New business in tank work is light. Prices continue 1.80c to 1.85c, Pittsburgh.

New York, April 1.—Plate demand remains spotty, with the bulk of business going at unchanged prices of 1.90c to 1.95c, Coatesville. Deliveries range from a week to ten days. Immediate action is expected on the two smaller of four vessels pending for the United States Lines, each of which will require 9000 tons of plates. The Bethlehem Shipbuilding Corp. is low on a ferry for Boston, requiring 1500 tons of plates. Central Railroad of New Jersey has closed on ten locomotives, requiring approximately 400 tons of plates. Norfolk & Western has placed 1200 tons of riser plates with the Illinois Steel Co. Several other eastern railroads are opening bids on second quarter specifications.

Steadiness in plate prices was re-

flected in the opening of bids on the New York Central second quarter plate requirements, amounting to more than 2000 tons. Bids follow: 1.80c, Cleveland, Otis Steel Co.; 1.90c, Danville, Grant City Steel Co.; 1.80c, Newberry Junction, Lukens Steel Co.; 2.005c, Newberry Junction, Central Iron & Steel Co.; 1.90c, West Seneca, Bethlehem Steel Co.; 1.80c, Pittsburgh or West Seneca, Carnegie Steel Co.; 1.90c, Chicago, Illinois Steel Co.; 1.80c, Youngstown, or 1.90c, West Seneca, Jones & Laughlin Steel Corp.; 1.80c, Youngstown, Youngstown Sheet & Tube Co.; and 1.90c, Indiana Harbor, Inland Steel Co.

Philadelphia, April 1.—Plate demand has improved slightly, with eastern mills operating at 50 to 75 per cent. The general price continues 1.90c, base, Coatesville, subject to occasional concessions on large tonnages. Not much contracting is noted for second quarter. The States Steamship Co. is taking bids for five vessels for the oriental trade, requiring 25,000 to 28,000 tons of steel, chiefly plates.

Cleveland, April 1.—Specifications have not been received as yet against second quarter contracts, many of which carry the 1.85c, Pittsburgh, price. Walsh Construction Co. purchased 250 tons of sheet piling from Bethlehem Steel Co. Lima Locomotive Works has released the boiler plates needed for ten locomotives for Boston & Albany, ordered some time ago from an eastern mill.

CONTRACTS PLACED

5300 tons, plates and shapes, 50 barges, Standard Unit Navigation Co., to Dravo Contracting Co.
1200 tons, riser plates, Norfolk & Western, to Illinois Steel Co.
490 tons, six tanks for Union Oil Co. terminal, Edmonds, Wash., to Seattle Boiler Works.
250 tons, boiler plate for ten Boston & Albany locomotives, awarded Lukens Steel Co. by Lima Locomotive Works.
250 tons, sheet piling, two piers, Central-Lorain bridge, Cleveland, to Bethlehem Steel Co., by Walsh Construction Co., general contractor.
200 tons, four tanks, for the Sinclair Oil Refining Co., Marcus Hook, Pa., to Chicago Bridge & Iron Works.
130 tons, smokestack and duct work for Crown-Willamette Paper Co., Camas, Wash., to Seattle Boiler Works.
110 tons, water tanks for Rock Island and Marysville, Wash., to Chicago Bridge & Iron Works.
100 tons, Tacoma pipe extension, to Birchfield Boiler Works.
100 tons, sheet piling, state highway bridge, Palmyra, N. J.

CONTRACTS PENDING

4000 tons, 30 barges for Callahan Construction Co., St. Louis.
3500 tons, gas holder for Southern Counties Gas Co., Los Angeles. Western Pipe & Steel Co. low bidder.
1800 tons, 20 or 24-inch welded steel pipe line for California-Hawaiian Sugar Co., Crockett, Calif. Bids in.
1500 tons, municipal ferryboat, Boston, Bethlehem Shipbuilding Co., low bidder on construction.
500 tons, towboat to be built by Dubuque Boat & Boiler Co.
250 tons, checker plates, ramps, approaches and floor work, completion of first section, west side elevated highway, New York; bids open April 3 on general contract.

Pipe

Steel Pipe Down $4—24,000-Ton Line Placed Milwaukee—New York Divides 8900-Ton Order

REPLENISHMENT of New York yard stocks places 8900 tons on five makers' books. Brooklyn, N. Y., which awarded 2600 tons, closes bids April 11 on 2397 tons for yard stocks. Municipality inquiry remains heavy, including Chicago's 1000 tons, on which delivered bids are higher. Line pipe buying leads in steel pipe activity, 24,000 tons being placed at Milwaukee.

PIPE PRICES, PAGE 102

New York, April 1.—Bids will be opened April 11 for 2397 tons of 8 and 12-inch cast pipe for the department of water supply, gas and electricity, Brooklyn yard stocks. On the same day bids will be taken on 1770 tons of special castings, valves and hydrants for Brooklyn.

Department of purchases placed the 8900 tons on which bids were taken two weeks ago with the low bidders as announced in IRON TRADE REVIEW of March 20. Buying by this city leads eastern market activity. Additional proposals are expected on several contractors' lettings soon. United States Pipe & Foundry Co. booked 2200 tons for Brooklyn, N. Y., through a contractor. Prices are firm on a basis of $37, eastern foundry. One hundred tons of small pipe was sold for Chile and a smaller tonnage went to Panama. Higher freight rates have not as yet been materially reflected in the delivered price for class B 6-inch and over. Foundries are operating better than 70 per cent in most instances. Southern foundries are at capacity on larger sizes.

Philadelphia, April 1.—Pennsylvania railroad is inquiring for 270 tons of black and galvanized pipe; also a considerable tonnage of signal pipe.

Pittsburgh, April 1.—Steel pipe prices have been reduced $4 a ton effective April 1 through an increase of two points in discounts, it has been announced by the leading interest. This applies to buttweld and lapweld steel pipe, and seamless tubing. Seamless casing, drill pipe and line pipe are being reduced about $4 a ton. Specialty items such as boiler and locomotive tubes and mechanical tubing are not affected. No change has been announced by producers of wrought iron pipe. The pipe market continues slow in buttweld material while demand from the oil country also is restricted. A 90-day extension to the conservation program in oil drilling has been announced for Oklahoma. Pending work in line pipe remains heavy. Recent awards include 276 miles of 12-inch pipe for a gas line in Minnesota and North Dakota, 24,000 tons. A. O. Smith Corp. was awarded the large-diameter material, while a local mill is reported to have received the gathering lines. Pipe mill operations continue around 40 per cent.

Chicago, April 1.—Bids for the 1000 tons of 16-inch cast pressure pipe for Chicago disclose higher delivered quotations than the recent range of $45.20 to $46.20. The low bids on this project were $47.20 to $47.40, delivered. Saginaw, Mich., closed on 500 tons of 6 to 24-inch pipe at $44.80, delivered, which brings the base price $1 under the recent minimum level. Ridgeway, Iowa purchased 100 tons. Among inquiries are 350 tons of 6 to 12-inch pipe for Neenah, Wis. It is expected the pipe for Galesburg, Ill., sewage disposal works will be awarded shortly, probably less than 500 tons, the total of the original inquiry. Both sewage and water pipe will be included.

Cleveland, April 1.—Pipe demand is spasmodic, jobbers only buying a carload now and then for filling in purposes. Most of the pipe bought is in the buttweld sizes. The $4 price reduction inaugurated today is expected to stimulate demand somewhat.

Birmingham, Ala., April 1.—Cast pipe lettings are frequent, warranting steady production. Pipe shops are protesting the recent advance in freight rates east of the Missippi river on pipe. Much business is being received from municipalities. Shipments are improving. No change in base, $37 to $38 on 6-inch and larger, has been announced.

Houston, Tex., April 1.—Gulf Pipe Line Co. started construction of an 8-inch oil line from Hankamer, Liberty county, to South Lake, Tex., about 20 miles, where connection will be made with main trunk line from North Texas fields to the Gulf.

Southern Natural Gas Corp. awarded W. S. Bibb, Birmingham, Ala., a contract for constructing 60 miles of lateral gas lines from Louisville, Miss., to Meridan, Miss., to cost $400,000.

Smith Bros. Construction Co., Santa Fe building, Dallas, Tex., was awarded contract for laying the 300-mile gas line from southeastern Kansas to eastern Nebraska for Missouri Valley Gas Co., Omaha, Nebr., at $2,000,000. The entire project is to cost approximately $12,000,000.

CONTRACTS PLACED

8900 tons, cast pipe in various sizes for New York city yard stocks; lined pipe to United States Pipe & Foundry Co., R. D. Wood & Co., and Warren Foundry & Pipe Co.; unlined pipe and fittings to Donaldson Iron Works and Ray-Mount Products Co.
2200 tons, 30-inch cast pipe for Brooklyn, N.

Y., to United States Pipe & Foundry Co.
569½ tons, regular and special cast pipe and tons of fittings for Kenosha, Wis., municipal filtration plant, to Lynchburg Pipe & Foundry Co. on its bid of $27,689.02; specific quantities and unit prices not announced.
500 tons, 6 to 24-inch cast pipe for Saginaw, Mich., to James B. Clow & Sons, at $44.80, delivered.
400 tons, 20-inch cast pipe for Brooklyn, N. Y., to Interstate Equipment Co.
350 tons, 4, 6 and 8-inch cast pipe for Sunnyside, Wash., to Pacific States Cast Iron Pipe Co.
200 tons, 4, 6 and 8-inch cast pipe for Chehalis, Wash., to American Cast Iron Pipe Co.
147 tons, 10-inch class 150 for the government at Manila, P. I., to National Cast Iron Pipe Co.
100 tons, 6 and 8-inch cast pipe for The Dalles, Oreg., to Pacific States Cast Iron Pipe Co.
100 tons, 2 to 8-inch cast pipe for Ridgeway, Iowa, to McWane Cast Iron Pipe Co.
100 tons, 6 and 8-inch, cast pipe for export to Chile, to American Cast Iron Pipe Co.
100 tons, 4 to 12-inch cast pipe for Montclair, N. J., to Warren Foundry & Pipe Co.

STEEL PIPE ORDERS

24,000 tons, 276 miles of 12-inch line pipe for Montana-Dakota Power & Light Co., to A. O. Smith Corp.

CONTRACTS PENDING

2397 tons, 8 and 12-inch cast pipe, department of water supply, gas and electricity, New York, borough of Brooklyn yard stocks, 900 tons to be unlined; bids April 11.
1770 tons, special and valve box castings, valves and double nozzle hydrants, department of water, gas and electricity, Brooklyn, N. Y.; bids April 11.
1000 tons, 16-inch cast pipe for Chicago; Glamorgan Pipe & Foundry Co. low bidder at $47.20, delivered.
500 tons, 12-inch cast pipe for Manhattan, N. Y.; bids in.
350 tons, 6 and 12-inch cast pipe for Neenah, Wis.; bids in.
212 tons, 4 to 8-inch class B, Los Angeles county waterworks district No. 10, Los Angeles; bids April 14.
150 tons, 6 and 8-inch cast pipe for Seneca, Nebr.; bids in.
127 tons, 6-inch class 150, for San Francisco; bids March 31.
102½ tons, including 77½ tons 6-inch and 25 tons 8-inch, for Two Rivers, Wis.; bids close April 5.

Tin Plate

Specifications and Operations Continue at High Rate

TIN PLATE PRICES, PAGE 102

Pittsburgh, April 1.—Tin plate is in a steady market as regards incoming business and operations. The larger canmakers are taking tin plate at a good rate. Prospects for increased packs of fruits and fish on the Pacific coast as compared with last year are bright. The fruit pack last year was curtailed by frosts. Tin plate operations continue around 85 per cent. The market holds at $5.25 per 100-pound base box, Pittsburgh.

Carnegie Men Promoted

Pittsburgh, April 1.—James W. Hamilton, assistant secretary of the Carnegie Steel Co. and affiliated with the company for the past 12 years, has been elected secretary to succeed the late James J. Campbell. William Donald, with 25 years' service in the company and formerly assistant auditor, has been named assistant secretary and auditor. John H. Dorning has been elected assistant auditor.

Sheets

Larger Automotive Tonnage Is Expected This Month—Seasonal Requirements Coming to Fore

SEASONAL requirements are increasing demand for some grades of sheets and the market in general is satisfactory from the producers' standpoint except for the continued low rate of sales of the automotive industry. Heavier releases of autobody sheets are expected this month. Implement and tractor builders are taking larger tonnages. Prices are steadier.

SHEET PRICES, PAGE 101

Pittsburgh, April 1.—Sheet business is holding to the rate of the past several weeks. Current specifications are regarded as satisfactory from all lines except the automotive industry. Heavier releases from some automotive companies are in prospect for April. The aggregate of current tonnage remains well below the usual seasonal volume. Signs of improvement in building operations are seen in heavier specifications for lath stock while some other consumers, including tank and drum makers, are maintaining high operations. Prices are steady rather than strong. The proposed 2.75c price for second quarter black sheet tonnage has disappeared, the market holding fairly well at 2.65c. Tin mill black continues 2.80c to 2.90c. Galvanized sheets generally are 3.30c although some makers continue to ask 3.40c. Blue annealed plates continue 2.10c except on sizes in competition with continuous sheets. Autobody sheets are 3.80c. Contracting for second quarter is fairly heavy. Operations are steady at around 75 per cent.

New York, April 1.—New sheet business is light, insufficient to test the prices now quoted by the majority of sellers for second quarter, namely, 2.75c, base, Pittsburgh, for black and 3.40c for galvanized. Substantial tonnages are being specified on old contracts at 2.65c for black and 3.30c for galvanized, and in some instances at less. Blue annealed plates continue 2.10c, base, Pittsburgh, and blue annealed sheets 2.25c.

Buffalo, April 1.—Better demand for sheets is reflected in an increase in operations in Buffalo mills, now ranging from 80 to 85 per cent. Unfilled tonnage has reached a new hign point for the year.

Cleveland, April 1.—Demand for autobody sheets has increased slightly, although the local body plant remains on a daily basis of 3000 jobs, five days a week. One or two stove companies are ordering more material. Autobody sheets are 3.80c, Pittsburgh; metal furniture 3.90c; galvanized 3.30c, and black 2.65c.

Chicago, April 1.—Sheet mills in this district are getting an encouraging volume of short range business, while backlogs run from two to three weeks. Farm implement and tractor buyers are more active. One producer in this district may announce higher prices this month. Mill operations are 80 to 85 per cent. Prices now being named are 2.75c to 2.85c, mills, for No. 24 black, 3.40c to 3.50c for No. 24 galvanized, and 2.30c and 2.45c for Nos. 10 and 13 blue annealed.

Philadelphia, April 1.—The majority of consumers are postponing second quarter contracts. Prices now generally are 2.10c and 2.25c, base, Pittsburgh, for blue annealed plates and sheets, respectively; 2.65c for black and 3.30c for galvanized. The recent advance of $2 apparently has not been maintained.

Cincinnati, April 1.—Demand for sheets in general manufacturing lines is holding up well but specifications for automobile sheets are reported as only 40 per cent of seasonal expectations. Production schedules are being maintained at about 60 per cent.

St. Louis, April 1.—Sheet sales are mainly in small lots, but the tonnage makes a good total. The leading local producer is quoting the following as minimum for second quarter, delivered in St. Louis; No. 24 black, 3.07c; No. 10 blue annealed, 2.42c; No. 13 blue annealed, 2.57c; galvanized, 3.72c.

Refractories

Second Quarter Outlook Less Promising Than First Has Proved

REFRACTORIES PRICES, PAGE 102

Pittsburgh, April 1.—Shipments of refractory brick have been holding well at the rate of earlier in the year and the first quarter movement compared favorably with that for the corresponding 1929 period. The outlook for second quarter is less favorable inasmuch as less new construction is pending. The Jones & Laughlin Steel Corp. is relining and enlarging its No. 3 stack at Aliquippa. Blast furnace work remains pending for the Bethlehem Steel Co. at Johnstown, and the National Tube Co. has material in prospect for its new McKeesport mill. Prices are steady and unchanged, with first quality fire clay brick and silica brick continuing $43. Second quality fire clay brick is $35 to $38. Magnesite brick and chrome brick continue $65 and $45, respectively.

Continental Can Co., large consumer of tin plate, will double the output of its plant in Cuba.

Structural Shapes

Bridge Items Numerous—Subways, Roadways Take Largest Tonnages—Brooklyn Awards 4000-Ton Court House

BRIDGES, subways, roadways and other engineering projects continue to develop important structural tonnages. Three New York subways and a tunnel for April placement, call for 24,000 tons while a roadway for May award, involves 30,000 tons. Bridge awards are noted this week as taking place in Maryland, New Hampshire, Pennsylvania, Oklahoma, Kentucky, Missouri and Illinois. State bridges for Iowa and Maine are up for bids. Public buildings also mean attractive tonnages for fabricators, a court house at Brooklyn, N. Y., 4000 tons, being placed and post offices at Milwaukee, Chicago, Cleveland, and elsewhere coming up. A state building at Hartford, Conn., and an apartment at New York, each calls for 1500 tons.

STRUCTURAL SHAPE PRICES, PAGE 101

New York, April 1.—Approximately 24,000 tons of shapes will be required for three subway sections and one river tunnel to come out for bids this month. The second section of the West Side elevated highway, expected up for bids early in May, will call for about 30,000 tons. Pending tonnage for engineering projects and general building remains heavy. Some work is being refigured to meet the 16,000 pounds per square inch stress law recently signed by the mayor. Awards continue light and some fabricators have substantially reduced backlogs. Shape mills operate about 80 per cent. Prices are inclined easier with reports of shading on 2.045c, New York, for attractive tonnages.

Boston, April 1.—With awards totaling in excess of 2300 tons, the structural situation improved measurably last week, although pending tonnage is light. A bridge at Hooksett, N. H., 1600 tons, went to American Bridge Co., and a state hospital at Waltham, Mass., 500 tons, went to Palmer Steel Co.

Philadelphia, April 1.—Shape demand is fair but eastern mills are unable to operate above 75 per cent. prices are unchanged, with 1.75c to 1.85c, base, eastern mill, being quoted on plain standard shapes and lower named on desirable tonnages.

Pittsburgh, April 1.—Structural steel is slow in this district both in awards and inquiries. Specifications for plain material hold well although little improvement has been noted the past 30 days. A fair number of small individual orders are being placed but large jobs are lacking. Plain material continues 1.80c to 1.85c, Pittsburgh.

Cleveland, April 1.—Structural steel awards continue in abeyance, although 300 tons for catenary bridges for Cleveland Interurban Railroad Co. was ordered from American Bridge Co. Numerous large projects are scheduled to appear in the near future, including a department store for the terminal group, on which plans now are being drawn. It will require 10,000 or 12,000 tons. Now that the site has been selected for a new post office, bids will be requested at an early date; possibly 5000 tons will be needed. Specifications for plain material are remarkably well maintained, according to mill interests. No real start has yet been made against second quarter arrangements, but many carry 1.85c, Pittsburgh, figures. A 1.80c price can be had on attractive tonnages. The price of $50 and $52 a ton, mentioned in this report last week, appears to have been on a special job of simple fabrication. Regular work commands higher figures.

Buffalo, April 1.—McClintic-Marshall Co. was awarded 325 tons of structural for a new building for the Oneida Craft Shops, Oneida, N. Y.

Chicago, April 1.—Smaller tonnage structural inquiries show improvement. Several fabricators have comfortable backlogs, with car shop specifications for light shapes helping to maintain backlogs. Shipments of plain material are two to six weeks deferred. Working plans are being pushed for the $14,000,000 9-story post office and federal building for Chicago, so that bids can be advertised within 30 to 60 days. General contract for the 2000-ton Milwaukee post office and federal building has been awarded, and 6000 to 7000 tons for Northwestern Mutual Life Insurance building in Milwaukee will be let soon. With fresh car awards in sight, the outlook of structural mills for second quarter is more favorable. The range for plain material is 1.90c to 2.00c, Chicago, with the top of the spread a nominal figure.

Birmingham, Ala., April 1.—Steel fabricating shops, with contracts coming in steadily, anticipate continued activity. Large tonnages are scarce but jobs involving up to 100 tons at a time are numerous. May will be an active month.

CONTRACTS PLACED

4000 tons, court house, Brooklyn, N. Y., to George A. Just Co.

2500 tons, shapes, plates and bars, Norfolk & Western railroad, divided among Eastern Steel Co., Carnegie Steel Co., and Central Iron & Steel Co.

2000 tons, apartment, Seventh avenue and Christopher street, to Easton Structural Steel Co.; previously reported placed with unstated fabricator.

1800 tons, transmission towers, San Joaquin Light & Power Co., Fresno, Calif., to Pacific Coast Steel Corp.

1700 tons, bridge, Pennington avenue, Baltimore, to American Bridge Co.

1600 tons, bridge at Hooksett, N. H., to American Bridge Co.

1500 tons, bridge, Safe Harbor, Md., to Bethlehem Steel Co.

Awards Compared

	Tons
Awards this week	25,617
Awards last week	26,426
Awards two weeks ago	25,881
Awards this week in 1929	44,717
Average weekly awards, 1930	32,198
Average weekly awards, 1929	38,603
Average weekly awards, Mar.	27,797
Total awards to date, 1929	543,134
Total awards to date, 1930	450,765

1300 tons, subway construction, Buenos Aires, South America, to United States Steel Products Co.

800 tons, Exchange avenue bridge, Oklahoma City, Okla., to Virginia Bridge & Iron Co.

800 tons, grade crossing, New York Central railroad, 154th street, New York, to McClintic-Marshall Co.

700 tons, pier sheds, Norfolk & Western railroad, to Virginia Bridge & Iron Co.

600 tons, St. Anthony school, Bronx, N. Y., to Buckingham Steel Co.

600 tons, apartment, West End avenue and Seventy-fifth street, New York, to Dreier Iron Works.

550 tons, tetraethyl lead plant, E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., to Bethlehem Steel Co.

500 tons, bridge spans in Kentucky for Illinois Central railroad, to Louisville Bridge & Iron Co.; previously reported to unstated fabricator.

500 tons, state hospital, Waltham, Mass., to Palmer Steel Co.

425 tons, viaduct, Kansas City, Mo., to Wisconsin Bridge & Iron Co.

420 tons, bridges, Pennsylvania railroad, Sunbury and Harrisburg, Pa., to Phoenix Bridge Co.

400 tons, bridge, Boston & Maine railroad, Lawrence, Mass., to Shoemaker Bridge Co.

400 tons, alterations, Columbia theater, New York, to George A. Just Co.

350 tons, live stock building, Sacramento, Calif., to Judson-Pacific Co.

325 tons, building, United Craft Shops, Oneida, N. Y., to McClintic-Marshall Co.

325 tons, highway bridge, Pensauken, N. J., to Bethlehem Steel Co.

300 tons, catenary bridges, Cleveland Interurban Railroad Co., Cleveland, to American Bridge Co.

300 tons, additional for new plant, Puget Sound Pulp & Timber Co., Everett, Wash., to Isaacson Iron Works.

300 tons, viaduct in Atlanta, Ga., to Virginia Bridge & Iron Co.

300 tons, building, Bayer Co., Rensselaer, N. Y., to McClintic-Marshall Co.

250 tons, Congress street substation, Commonwealth Edison Co., Chicago, to Wendnagel & Co.

250 tons, power station, Edison Electric Co., Boston, to Eastern Bridge & Structural Co.

242 tons, transit shed at foot of Ninth avenue, Oakland, Calif., to Herrick Iron Works.

225 tons, rayon plant structure, Du Pont Fibersilk Co., Old Hickory, Tenn., to Virginia Bridge & Iron Co.

220 tons, building, Sixty-ninth street, Phila-

delphia, to Kalman Steel Co.
200 tons, bridge spans for Chicago, Milwaukee, St. Paul & Pacific railroad, to American Bridge Co.; previously reported to unstated fabricator.
185 tons, Maryland house of correction, Jessup, Md., to Bethlehem Fabricators Inc.
150 tons, immigration station, Seattle; garage, American Railway Express Co., and Monroe high school, to Isaacson Iron Works.
150 tons, garage, National Garages Inc., Kansas City, Mo., to McClintic-Marshall Co.
150 tons, building, Loyal Order of Moose, Camden, N. J., to Shoemaker Bridge Co.
100 tons, warehouse, Broderick & Bascom Co., Seattle, to Isaacson Iron Works.
100 tons, viaduct, Seattle port commission, Seattle, and warehouse, Graybar Electric Co., Seattle, to Hofius Steel & Equipment Co.
100 tons, office building, Seaboard By-Products Coke Co., Kearny, N. J., to Rust Engineering Co.
100 tons, county infirmary, Lorain, O., to National Iron & Wire Co.
100 tons, crane runway, Owen Bucket Co., Cleveland, to National Iron & Wire Co.
100 tons, press room alterations, Cleveland Shopping News Publishing Co., Cleveland, to Republic Structural Iron Works.
100 tons, addition Toledo Edison Co., Toledo, O., to Flint Structural Steel Co.
100 tons, library storage building, Huntington Free Library, New York, to Dreier Iron Works.
100 tons, addition, telephone building, Lispenard street, New York, to Dreier Iron Works.
100 tons, plant addition, Micarta division, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to Jones & Laughlin Steel Corp.

CONTRACTS PENDING

9460 tons, subway, route 108, section 6, Fifty-fifth avenue to Sixty-fourth road, Queens, N. Y.; bids April 29.
6000 tons, subway, route 103, section 3, Essex and Rutgers streets, Manhattan, N. Y.; bids April 22.
5500 tons, subway, route 110, section 5, Rockaway avenue, Brooklyn, N. Y.; bids April 15.
3000 tons, subway-tunnel, Rutgers street, Manhattan, N. Y., to Jay street, Brooklyn, N. Y., under East river; also 36,000 tons cast iron segments and 180 tons cast steel; to be readvertised about April 15.
3000 tons (estimated), state office building, Columbus, O.; starting plans.
2000 tons, post office and federal building, Milwaukee; general contract to Ralph Sollitt & Sons Construction Co.
1500 tons, state office building, Hartford, Conn.
1500 tons, apartment, West Sixty-seventh street, New York.
1400 tons, hospital at Presidio, San Francisco, Dyer Bros. low bidders.
1200 tons, $1,000,000 Y. M. C. A. building, Akron, O.; Good & Wagner, Akron, architects.
1000 tons, Racine county court house, Racine, Wis.
1000 tons, state highway bridges in Iowa.
800 tons, two high schools, Akron, O., to cost $500,000 each; M. M. Konarski, architect.
500 tons, for caboose cars, Southern Pacific Equipment Co., San Francisco; bids in.
500 tons or more, DeVilbiss high school, Toledo, O., to cost $1,500,000; Edwin Gee, care board of education, Toledo, architect.
500 tons, bridge work for Northern Pacific railroad at Topeka, Minn.
475 tons, power house at Houston, Tex.
400 tons, bridge work for Chicago, Milwaukee, St. Paul & Pacific railroad.
400 tons, state highway bridges, West Virginia.
300 tons, miscellaneous steel, including shapes, angles, etc., for completing first section, west side elevated highway; ramps, approaches and floorwork; bids open April 3 on general contract.
160 tons, five state bridges, Maine.
150 tons of shapes and 150 tons of ornamental steel, Herbert S. Hadley vocational school, St. Louis.
130 tons, bureau of yards and docks, Washington.
100 tons, office building, Colorado Fuel & Iron Co., Bay State and Schley avenues, Pueblo, Colo.; general contract to Platt Rogers Inc.
100 tons, Clinic hospital, Cincinnati.
100 tons, building, Peoples Building & Loan association, Ashtabula, O.; bids in.
100 tons, addition, municipal lighting plant, Cleveland, to cost $250,000.
100 tons, addition, Taylor road school, Cleveland Heights, O., general contract to Mohawk Construction Co.; John H. Graham & Co., architects.

Concrete Bars

Awards Slower — Pending Work Topped By Subways, Road Work—Mesh Active

SUBWAY sections in New York call for 1300 tons and a roadway there involves 1500 tons. Two schools in the South were awarded, 860 tons, and three hospital buildings, were placed at Long Island, N. Y., 700 tons. Miscellaneous buying continues at a fair pace. A pier at Pearl Harbor, T. H., 1000 tons, has reached the general contractor.

REINFORCING BAR PRICES, PAGE 101

New York, April 1.—Concrete reinforcing bars are more active. Prices are not firm at 2.55c, delivered New York, in car lots, and considerable shading is reported on attractive business. Three subway sections to be advertised this month will take 1300 tons and 1500 tons will be required to complete the first section of the West Side elevated highway. Bids are in. Pending road work in New Jersey calls for 700 tons. New specifications for New Jersey state road work allow rail steel this year. Several bid openings occur next week.

Boston, April 1.—Improved sentiment is slow in turning inquiries into orders for concrete bar producers. An early clearing up of some of the long pending projects, however, is expected. Prices are a shade softer.

Pittsburgh, April 1.—Concrete bar awards hold well, March tonnage showing a fair gain over February's. Individual inquiries are steady and in fair volume. The market continues 1.85c, Pittsburgh, for stock lengths and 2.10c for cut lengths.

Buffalo, April 1.—New inquiry for 625 tons of mesh for highway construction is reported here this week.

Cleveland, April 1.—Concrete bar awards and inquiries are as scarce as they have ever been at this season in the experience of important fabricators. This lack of tonnage is accompanied by considerable price weakness, competition being exceedingly keen over each job. While the market on stock lengths is quoted 1.85c, Cleveland, $2 to $4 a ton less than that has appeared in specific instances, where tonnage has been wanted.

Chicago, April 1.—Reinforcing bar inquiry displays more vigor. Industrial construction offers a sharp contrast to contemplated building work which lags because it requires special financing. Bids will be received April 11 for Illinois highway work, including the widening of radial highways entering Chicago. Bids on the larger unit have been rejected. Billet reinforcing bar prices are fairly well stabilized at 2.00c, plus extras.

Awards Compared

	Tons
Awards this week	5,410
*Awards last week	16,208
Awards two weeks ago	6,201
Awards this week in 1929	6,823
Average weekly awards, 1929	5,849
Average weekly awards, 1930	6,388
Average weekly awards, Mar.	10,172
Total awards to date, 1929	89,453
Total awards to date, 1930	89,433

*Revised

CONTRACTS PLACED

1000 tons, plant, American Can Co., Terre Haute, Ind., to Joseph T. Ryerson & Son Inc.
800 tons, mesh, Empire State building, New York, to Concrete Steel Co.
730 tons, state school buildings, Wassaic, N. Y., to Tidewater Steel Co.
700 tons, three buildings, Pilgrim hospital, Long Island, N. Y., to Carroll-McCreary & Co. Inc.
460 tons, Alcee Fortier high school, New Orleans, to Connors Steel Co.
400 tons, Robert E. Lee hotel, Jackson, Miss., to Connors Steel Co.
350 tons, foundation, post office, Brooklyn, N. Y., to Joseph T. Ryerson & Son Inc.
250 tons, grade crossing, Pennsylvania railroad, Long Island, N. Y., to Concrete Steel Co.
225 tons, West Spokane street bridge approach, Seattle, to Pacific Coast Steel Co.
225 tons, subway route 110, section 3, New York, to Joseph T. Ryerson & Son Inc.
100 tons, factory building, United States Rubber Co., Passaic, N. J., to Truscon Steel Co.
100 tons, Pennsylvania state bridge work, to Concrete Steel Co.
100 tons, bridge, Fresh Kill, Staten Island, N. Y., to Igoe Bros.

CONTRACTS PENDING

1500 tons, Illinois state road work, 140 miles; bids April 11.
1500 tons, ramps, approaches and floor, west side elevated highway, first section, West street, New York; bids open April 3 on general contract.
1000 tons, pier for naval air station, Pearl Harbor, Hawaii; general contract awarded.
790 tons, subway, route 108, section 6, Fifty-fifth avenue to Sixty-fourth road, Queens, N. Y.; bids April 29.
700 tons, road work, New Jersey.
700 tons, Herbert S. Hadley vocational school, St. Louis.
500 tons (mesh), for Southwestern boulevard, Buffalo; Meyer & Meyer, Depew, N. Y., low bidder.
374 tons, settling tanks Nos. 1 and 2, Back River Sewage Treatment Works, Baltimore, sanitary contract No. 263; bids April 2.
360 tons, subway, route 110, section 5, Rockaway avenue, Brooklyn, N. Y.; bids April 15.
217 tons, Montgomery county sewerage project, Moraine City near Dayton, O.
150 tons, subway, route 103, section 3, Essex and Rutgers streets, Manhattan, N. Y.; bids April 22.
139 tons, paving in Glenn county, Sacramento, Calif.; bids received.

Rails, Cars

Second Quarter Car Needs to Start Buying Movement—Van Sweringen Roads Buy 91 Coaches

PRESENT lull in car buying bids fair to be replaced soon by another active movement. Three roads actively out for 1000 units. Illinois Central is to buy 2321 cars, Erie and Pere Marquette 10,000, New York Central a similar number, Pennsylvania 6000, and several others smaller quantities. Rails are quiet; fastenings fair. About 24 engines were placed.

RAILROAD TRACK PRICES, PAGE 102

New York, April 1.—Car buying other than the placing of 91 miscellaneous coaches for the Chesapeake & Ohio, Pere Marquette and Hocking Valley railroads is light. Inquiry is spotty. Locomotive buying includes ten for the Central Railroad of New Jersey. Active pending freight car inquiries include approximately 500 coaches, 100 of which are for Reading and 95 for Central Railroad of New Jersey. Pacific Fruit Express is expected out shortly for 1500 refrigerator cars.

Domestic freight car awards for March totaled 6001 cars, bringing the total for the first quarter up to 27,888. Comparisons follow:

	1930	1929	1928	1927	1926
Jan.	4,966	13,196	4,160	14,710	8,830
*Feb.	16,921	15,944	10,220	5,960	12,895
March	6,001	12,023	2,958	4,955	8,895
Total 3 Mo.	27,888	41,163	17,338	25,625	25,625
April	.....	8,205	6,043	3,675	4,615
May	.....	7,562	2,531	5,425	4,448
June	.....	5,886	2,422	7,440	4,285
July	.....	341	582	2,295	1,265
Aug.	.....	2,854	677	1,181	152
Sept.	.....	4,517	1,378	682	3,335
Oct.	.....	19,506	2,853	886	2,840
Nov.	.....	6,361	6,140	1,189	3,925
Dec.	.....	9,710	4,799	14,897	8,990
Total	.....	106,105	44,763	63,295	64,475

*Revised.

Chicago, April 1.—Additional car work for western shops is likely during second quarter. Illinois Central is expected to ask for bids shortly on 2321 car units and nine oil-electric locomotives, all to cost about $9,000,000. This in addition to about $1,000,000 in carry-over equipment orders from last year, will bring equipment expenditures to a total of about $10,000,000. Besides the locomotives, the inquiry will comprise 1000 auto-furniture cars, 500 mill type gondolas, 500 hoppers, 200 flats, 15 mail, baggage and express, 15 passengers, 20 electric suburban cars, 65 cabooses, four diners, and two rail-motor cars. This inquiry will call for 40,000 to 45,000 tons of steel. About half of the recently awarded 91 passenger cars for Chesapeake & Ohio will be built by western shops. Reports in this market are that the Van Sweringen lines may be in the market for an additional 10,000 units, chiefly for Erie and Pere Marquette. It is reported also that New York Central and Pennsylvania may buy 10,000 freight cars and 6000 cars, respectively. Chicago & North Western and Union Pacific also are expected to issue additional inquiries.

Rail mill operations in this district continue close to capacity, and track fastenings activity is at practical capacity. No new rail tonnage has been placed, but orders for 2500 to 3000 tons of track fastionings have been booked.

Pittsburgh, April 1.—Specifications for track material are termed satisfactory. Incoming business in March showed a moderate gain over that of February. Little new inquiry of size is appearing and no lists of consequence are pending. Some second quarter contracts for track material are being signed, with prices continuing unchanged. Light rails are quiet with price irregularity still noted.

Roanoke, Va., April 1.—Contracts have been awarded Eastern Steel Co., Carnegie Steel Co., and Central Iron & Steel Co., for 2500 tons of shapes, bars and plates by Norfolk & Western railroad for second quarter delivery. It also awarded Bethlehem Steel Co. 2000 steel car axles, and Illinois Steel Co. 1200 steel riser plates.

Cleveland, April 1.—Chesapeake & Ohio, Pere Marquette and Hocking Valley railroads of the Van Sweringen interests here have ordered 91 miscellaneous coaches costing $2,900,000. Orders were divided among Pullman Car & Mfg. Corp., Standard Steel Car Co., American Car & Foundry Co., Pressed Steel Car Co., and St. Louis Car Co.

Rail orders are light. Detroit & Toledo Shore Line railroad placed 1000 tons of rails for immediate delivery, and the Wheeling & Lake Erie railroad 500 tons.

CAR ORDERS PLACED

Anglo-Mexican Petroleum Co., three tank cars to General American Tank Car Corp.
Bangor & Aroostook, 200 underframes and superstructures, to Standard Steel Car Co.
Chesapeake & Ohio, 67 miscellaneous coaches, including 30 de luxe coaches, to Pullman Car & Mfg. Co., 11 de luxe coaches, to Standard Steel Car Co., six mail and express cars to American Car & Foundry Co., 15 combination cars, to Pressed Steel Car Co., and five combination cars, to St. Louis Car Co.
General Electric Co., five 50-ton flat car bodies, to American Car & Foundry Co.
Gulf, Mobile & Northern, 250 box cars, to American Car & Foundry Co.
Hocking Valley, four de luxe coaches, to Standard Steel Car Co.
Louisiana & Arkansas, 500 box cars, to General American Tank Car Corp.
Pennsylvania Salt Mfg. Co., one tank car, to General American Tank Car Corp.
Pere Marquette, 20 miscellaneous coaches including eight de luxe coaches, to Pullman Car & Mfg. Corp., and 12 baggage and express cars, to American Car & Foundry Co.
Southern Pacific, five diners, to Pullman Car & Mfg. Corp.
Union Pacific, two gasoline-electric rail motor cars, to J. G. Brill Co. and two trailers to Pullman Car & Mfg. Corp.

LOCOMOTIVE ORDERS PLACED

Akron & Barberton Belt, four switching engines to Baldwin Locomotive Works.
Central Railroad of New Jersey, five Pacific type locomotives and five switching engines, to Baldwin Locomotive Works.
Louisville & Nashville, six passenger engines costing $450,000, to Baldwin Locomotive Works.
Pennsylvania, four locomotives, to Baldwin Locomotive Works.

RAIL ORDERS PLACED

Detroit & Toledo Shore Line, 1000 tons, to Illinois and Bethlehem Steel Cos.
Northern Alberta, 11,000 tons of steel rails and splice bars, to British Empire Steel Corp. and Algoma Steel Corp.
Wheeling & Lake Erie, 500 tons, to Carnegie Steel Co.

CAR ORDERS PENDING

Green Bay & Western, 125 auto box cars.
Minneapolis & St. Louis, 500 box cars.
Missouri, Kansas & Texas, 250 gondolas.
Warrior River Terminal Co., 65 steel gondolas; bids April 12.

LOCOMOTIVE ORDERS PENDING

Chicago, St. Paul, Minneapolis & Omaha, three locomotives.

Pig Iron

(*Concluded from Page* 103)

district furnace. Dock iron is offered at concessions. It is estimated several thousand tons of iron remain on dock from last year, including silvery iron. Negotiations are on for this season's iron to be shipped in by boat.

St. Louis, April 1.—Pig iron shipments in March are reported to have exceeded those of February by a substantial margin. While considerable iron is to be purchased for second quarter melters are slow in covering. This is due to price uncertainty, inability to judge requirements, and liberal stocks and offerings of blast furnace interests, particularly in the South. Sales in the past week totaled less than 4000 tons.

Birmingham, Ala., April 1.—Southern pig iron producers have large backlogs for second quarter as a result of the buying movement which started two weeks ago. Buying has subsided, but a stronger sentiment prevails and some furnace interests intimate they intend to increase prices. The base price for nearby delivery is $14, Birmingham. Production is steady. Large shipments are to start soon for Atlantic coast and middle western cities.

Toronto, Ont., April 1.—More melters have placed contracts for pig iron, and their requirements are larger than in the first three months. Spot buying is well sustained.

Strip

Bookings Larger in March Than February, but Still Light—Production Is Higher

BUYERS of strip steel are cautious, and contracting for future needs is light. Better specifications are being filed and mills are increasing production slightly. Prices are steady and show no recession. Lack of automotive buying continues the greatest hindrance to better production. In spite of the March increase over February, demand is seasonally dull.

STRIP PRICES, PAGE 102

Pittsburgh, April 1.—Incoming tonnage in strip improved during March over February but remains seasonally light. Heavier tonnages are in prospect from automotive interests for April. Definite releases, however, of increased tonnages are lacking with buyers still cautious in making commitments. Demand for hot strip continues better than for cold-rolled materials and operations vary accordingly. Mill schedules are slightly higher this week at 55 to 65 per cent for hot strip; cold strip output holds at 30 per cent. Prices continue 1.80c and 1.90c, Pittsburgh, to most buyers of hot strip although on larger tonnages 1.85c and 1.75c apply. Cold strip continues 2.55c to 2.65c.

Philadelphia, April 1.—Wide hot strip is being contracted at 1.75c to 1.80c, Pittsburgh, and 1.85c to 1.90c, on narrow. Cold-rolled is 2.60c to 2.65c, base, Pittsburgh.

New York, April 1.—Demand for strip steel continues restricted, with sellers quoting hot strip at 1.80c to 1.90c, Pittsburgh, depending upon widths and cold strip at 2.65c, Pittsburgh. Deliveries remain at two weeks on hot strip and from two to three weeks on cold.

Cleveland, April 1.—More cold strip tonnage has been booked at 2.55c, Cleveland, but 2.65c has not entirely disappeared. Specifications show little tendency to expand, due to slowness of automobile output. The same holds true of hot strip with 1.70c to 1.80c, Pittsburgh, quoted on wide and 1.80c to 1.90c, Pittsburgh, on narrow. Some buyers are increasing specifications but the aggregate is far from that expected.

Chicago, April 1.—Prices for hot-rolled strip are on the basis of 1.90c, Chicago, for wide and 2.00c for narrow widths. Operations are about 60 per cent. Cold-rolled strip mills have virtually no backlogs and are operating at 40 to 50 per cent. Prices quoted here are on the basis of 2.55c to 2.65c, Pittsburgh-Cleveland.

Cold Finished Steel

Note Better Releases, Expected To Improve With Second Quarter

COLD FINISHED PRICES, PAGE 102

Pittsburgh, April 1.—Schedules of some automotive interests for April indicate improved releases for cold-finished steel bars. Incoming tonnage and shipments during the last week in March showed little change compared with preceding weeks of the month and total tonnage for last month was at approximately the February rate. This applies to demand from both automotive and other bar users. Contracting is well under way for second quarter with the market continuing 2.10c, Pittsburgh.

Cleveland, April 1.—Miscellaneous consumers of cold-finished bars are commencing to release a little more tonnage on second quarter contracts. The automotive industry has not opened up appreciably as yet but with improved weather conditions bringing a better sale of automobiles, specifications will immediately improve for the reason that users' stocks are low everywhere. Nothing less than 2.10c, Cleveland, is being quoted here.

Bethlehem Rate Up

New York, April 1.—Bethlehem Steel Co.'s increase in new business will schedule April operations at 85 per cent, according to Eugene G. Grace, president, at the annual stockholders' meeting held today at Newark, N. J. This is a rise of four points over first quarter, though a decline of seven from second quarter, 1929. Earnings will exceed $2.50 per common share for the initial quarter and total income will be higher than 1929 for these months.

Unfilled orders of Curtis-Wright Corp. at the end of March totaled $17,500,000.

Wire

Second Quarter Orders Being Taken—Prices Hold Firm—Orders in Fair Volume

WIRE consumers are taking fairly good tonnages in most lines and some automotive orders are being received. Prices are steady and second quarter contracts are being taken, though no real test has been afforded yet. Fencing sales at Chicago are equal to those of a year ago. Manufacturers' wire requirements are increasing steadily.

WIRE PRICES, PAGE 102

Chicago, April 1.—Second quarter contracts for wire products are being booked in moderate volume. Manufacturers' wire is not up to normal but is holding to the level of the past few weeks. Merchant wire products are moving fairly well, and sales of woven fencing are up to a year ago. It is reported that second quarter business has been signed on the basis of $2.35 to $2.45, Chicago or western mills, for wire nails. Sales of bright plain wire are at 2.45c.

Worcester, Mass., April 1.—There is little change in the wire market. Production is steady at about 60 per cent of capacity. Prices remain at 2.55c to 2.65c for plain bright wire to dealers.

Pittsburgh, April 1.—March shipments of wire products were slightly below the February volume, with recent incoming business little changed from that of the preceding several weeks. Merchant products continue dull, with little new business noted. Buyers continue to take shipments against contracts but new prices have not yet received a test. Producers are taking a firm stand at $2.30 to jobbers for wire nails, with other merchant products on a corresponding basis. Bright plain wire continues steady at 2.40c, with wire rods $38. Demand for wire products for agricultural use is expanding but these lines remain seasonally slow.

Cleveland, April 1.—While wire products orders from stores are light, demand for manufacturers' wire is improving. Last week one important interest had the best order book of the year, about 1000 more tons of wire, wire rods, etc. being ordered than in any week since Jan. 1. Operations improve slightly. Prices are firmer at 2.40c, Cleveland, for plain wire, $2.30 for wire nails and $38 for wire rods. Some large orders for wire, etc., were placed recently by Ford Motor Co. Other automotive tonnage is spotty.

J. V. Scaife Is Dead

James Verner Scaife, 61, president and director, William B. Scaife & Sons Co., Oakmont, Pa., manufacturer of tanks, etc., died March 31.

Nonferrous Metals

Market Sentiment Appears More Confident As Trading Prospects Improve—Copper Continues Firm—Zinc Trend Uncertain

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
March 26	18.00	18.10	17.30	37.50	37.80	5.75	5.60	4.85	23.90	8.00	35.00
March 27	18.00	18.10	17.30	37.40	37.65	5.75	5.60	4.85	23.90	8.00	35.00
March 28	18.00	18.10	17.30	37.62½	37.85	5.75	5.60	4.85	23.90	8.00	35.00
March 31	18.00	18.10	17.30	37.87½	38.15	5.75	5.60	4.85	23.90	8.00	35.00
April 1	18.00	18.10	17.30	36.75	37.25	5.75	5.60	4.85	23.90	8.00	35.00

NEW YORK, April 1.—Sentiment is growing more confident in the nonferrous metal market. Hope is in the automobile and building industries, and there appear to be some concrete evidences of gains in these two.

Brass mills report a slow but certain gain in the volume of their business, while copper wire mills are maintaining their own on the relatively high level attained early in the year.

Prices of nonferrous metal have been relatively steady this past week, following a jump of ¼-cent in lead and ⅛-cent in antimony a week ago.

Copper—Export business continues in fairly good size since its pickup of a week or two ago. Domestic business continues without much change in volume. The price remains as firm as ever and producers give every indication of holding indefinitely at the current figure. March statistics probably will be weak, with a continued accumulation of stocks, but with a more general belief abroad that business at large will improve in April, it is regarded as logical to expect the copper market to show stronger statistics in a month from now.

Zinc—Buying of prime western in the past week has been light, mostly at 4.85c, East St. Louis. There were rumors of a little business at 2½ to 5 points less, but most producers remained at this price, although ore sold down $2 to $35 a ton. High grade zinc is selling mostly at 1 cent over prime western. Some sellers of zinc are hard pressed by the accumulation of stocks and it is difficult to tell if the price has reached bottom.

Lead—Demand has been less active but this was regarded as natural after large business recently. Prices are up ¼-cent from the low that prevailed for a short time, but still are ½-cent lower than before the break began a month ago.

Tin—Consumer buying in the past week has been light, confined mostly to spot business. But the strength of the London market has kept prices fairly firm. Domestic deliveries in March were 8675 tons, large for any period and especially large under present business conditions. It is the talk of the trade here that some metal went into private warehouse, and that some metal was delivered to consumers that would not have been delivered until April if it had not been for special arrangements made by the seller rather than the buyer. The items of stock and landing showed almost no change with a total of 3566 tons, a decrease of 60 in the month. World's visible supply of tin at the end of March was 32,972 tons, a decline of 609 tons but a smaller cut than expected. Straits tin shipments last month were 7795 tons.

Aluminum—New business is slow but prices are steady.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ½c more)	9.50
Zinc sheet (100-pound base)	10.50
Zinc strip (100-pound base)	9.50
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	23.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	11.25 to 11.75
Chicago	10.75 to 11.25
Cleveland	11.50 to 12.00
St. Louis	10.00 to 10.50
HEAVY YELLOW BRASS	
Cleveland	7.50 to 8.00
HEAVY COPPER AND WIRE	
New York	14.50 to 14.75
Boston	14.00 to 14.50
Chicago	13.75 to 14.00
Cleveland	13.50 to 14.00
St. Louis	10.50 to 11.00
RED BRASS BORINGS	
New York	10.25 to 10.75
YELLOW BRASS TUBING	
Cleveland	7.50 to 8.00
LIGHT COPPER	
New York	12.50 to 13.00
Chicago	12.00 to 12.50
Cleveland	12.50 to 13.00
St. Louis	10.50 to 11.00
LIGHT BRASS	
Boston	6.50 to 7.00
Chicago	6.50 to 7.00
Cleveland	6.00 to 6.50
St. Louis	5.75 to 6.25
ZINC	
New York	2.50 to 2.75
Cleveland	2.00 to 2.50
St. Louis	2.50
ALUMINUM	
Clippings, soft, Cleveland	13.00 to 14.00
Clippings, hard, Cleveland	10.50 to 11.00
Borings, Cleveland	7.50 to 8.00
Cast, Cleveland	9.75 to 10.25
Cast, Boston	9.00 to 9.50
Cast, St. Louis	9.00 to 9.50

Secondary Metals

Remelt aluminum No. 12	16.00 to 16.50
Brass ingot, 85-5-5-5	15.50 to 15.75

Coke By-Products

Industrial Demand in Slight Rise—Prices Steady—Phenol Slow

New York, April 1.—Industrial demand for light oil distillates is slightly more active. Shipments are mostly against contracts, but a fair spot business is noted. Prices are firm and unchanged. Phenol is inclined to lag with some accumulation of stocks. Additional equipment for increased production now operating, has resulted in heavier output. Bulk of phenol in 250-pound drums is moving at 17.00c for best grades. St. Louis price is reported under the New York market, but freight rates bring midwest material up near the New York price. Naphthalene is active, mostly against contracts, as the peak shipping season develops. The drug-jobbing and chain-store trade are actively specifying with indications of a satisfactory cleanout on first half-year production. Stocks are lower. Sulphate of ammonia is easy. The fertilizer trade is taking a fair bulk volume.

Coke By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot
Pure benzol	$0.22
90 per cent benzol	0.22
Toluol	0.35
Solvent naphtha	0.28
Commercial xylol	0.28
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.04½ to 0.05½
Naphthalene balls	0.05½ to 0.06½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.00 to $2.10

Quicksilver Dull, Easy

New York, April 1.—Quicksilver is dull and easy at $119 to $120 a flask.

Warehouse

Market Continues Quiet—First Quarter Off —Prices Generally Unchanged—Some Forecast of Upward Trend Shown

FALL in first quarter tonnage is generally noted, with a rise, however, shown during March in Cleveland and New York. The past month at St. Louis touched a low in ten years for sales. Warehouse interests look to second-quarter volumes for increases upon effect to be produced shortly by the new quantity differentials. Prices are steady and unchanged for the most part and second quarter view generally predicts an upward trend.

Philadelphia—Somewhat slower bookings are reported. March average was good. Prices are firm and unchanged.

New York—While jobbing demand for March was substantially under that of a year ago, there was a slight improvement over the February rate. The past week, in fact, showed a moderately good gain. Prices are fairly firm on most products, although in galvanized sheets and in several lines of heavy hardware, irregularity continues.

Buffalo—Business continues to gain slowly. The quarter closes with sales materially lower than those the same period last year, but with the second quarter outlook regarded as fair to good.

Pittsburgh—Sales are spotty with the aggregate little changed from a month ago. Application of quantity differentials temporarily stimulated demand for some products and steadied prices somewhat.

Cleveland—March business was on a par with both February and January. The market continues generally quiet, notwithstanding a slight seasonal increase the past few days. Warehouse interests are confident that April will see a marked upward trend in buying. Prices continue unchanged.

Cincinnati—First quarter tonnage did not reach that of last year. Jobbers have noted little change in demand. Prices are steady.

Chicago—First quarter volume is disappointing, compared with a year ago. Prices are unchanged. Sheets are fairly active and plate and bar mill products are expected to show an increase shortly.

St. Louis—March business was unusually spotted, and aggregated volume was the smallest for the month in more than a decade. Curtailed building, rural demand and general manufacturing consumption were the chief causes for decrease. Stocks are no larger than the average at this time, however.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

Hot Mill Products Subject to New Quantity Differentials Adopted March 3, 400 to 3999 Pounds Being Base

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Houston	3.00c
Los Angeles	3.30c
New York††	3.25c
Philadelphia	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
New York††	3.25c
Philadelphia	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	2.665c
Buffalo	2.95c
Chattanooga	3.25c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Houston	3.00c
Los Angeles cl.	2.40c
Los Angeles lcl.	2.70c
New York	2.65c to 3.10c
Philadelphia	2.65c to 3.00c
Pittsburgh	2.75c
San Francisco cl.	2.30c
San Francisco lcl.	2.60c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Houston	3.25c
Los Angeles	3.30c
New York	3.30c
Philadelphia	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland ¼ in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York	3.30c
Philadelphia	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	2.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.75c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Houston	3.90c
Los Angeles	3.85c
New York	3.50c to 3.60c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.25c to 3.35c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.54½c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c
Detroit	3.95c
Los Angeles	4.75c
New York	3.65c to 3.90c
Philadelphia*†	3.80c
Pittsburgh**	3.65c to 3.75c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.79c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.40c to 4.60c
Chicago (local delivery)	4.60c
Chicago (outside shipment)	4.35c to 4.60c
Cincinnati	4.90c
Cleveland***	4.50c
Detroit	4.60c
Houston	5.40c
Los Angeles	5.20c
Pittsburgh**	4.30c
Philadelphia*†	4.45c
Pittsburgh**	4.40c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	4.85c
St. Paul	4.58c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chattanooga	3.45c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Houston	3.65c
Los Angeles	4.30c
New York	3.75c
Philadelphia	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York	4.25c
Philadelphia	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore (c)	3.50c(a)	4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chattanooga*	3.85c	4.35c(d)
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.40c	3.90c
Pittsburgh	3.60c	4.10c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	4.75c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only; (d) Squares only. *Plus quantity differentials.

COLD ROLLED STRIP

Boston, 0.100-inch 500 pounds lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.05c
Philadelphia (c)	5.05c

(b) Net base, straightening, cutting, boxing 1 ton or more. (c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

††Domestic bars. **Less than 25 sheets. *†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Improvement Appears in All Markets—Much New Work in Immediate View

LAGGING demand has been overcome along the coast and buying is returning to normal volume with sufficient pending lots to assure activity for some time. Prices are holding well, though desirable tonnages bring concessions. Pipe continues active, though contracts are in somewhat smaller volume. Logging and cannery resumption have decreased unemployment.

San Francisco, March 29.—(*By Air Mail*)—Further improvement in demand for iron and steel products on the Pacific coast is noted. New inquiries include 3500 tons of plates for a gas holder for the Southern Counties Gas Co., Los Angeles, and 500 tons of shapes for caboose cars for the Southern Pacific Equipment Co., San Francisco. Prices are holding fairly firmly at established levels.

Imports of iron and steel products on the Pacific coast during December, 1929, figures for which have just been received, show a decrease from November in imports for the major items. The aggregates for the major items were as follows:

	Tons Dec. 1929	Tons Nov. 1929	Tons Dec. 1928
Pig iron	1,804	2,371	364
Coke	3,215	5,157	4,442
Bars	926	1,274	1,425
Shapes	2,063	2,994	1,804
Cast iron pipe	1,012	250	2,991
Tubular Products	1,530	2,129	3,846

Bars, Plates and Shapes

Concrete bar awards were the largest in over seven weeks and aggregated 1501 tons. Sub-bids are being taken on 1000 tons for a pier in Pearl Harbor for the naval air station. Out-of-stock prices in Los Angeles continue firm at 2.40c, base, on carload lots and at 2.70c on smaller lots. San Francisco prices are $2 a ton lower. Merchant bar steel is firm at 2.35c, c.i.f.

Bids are being taken on 1800 tons for a 20 or 24-inch welded steel pipe line for the California-Hawaiian Sugar Co., Crockett, Calif., The Western Pipe & Steel Co. is low bidder on 3500 tons for a gas holder for the Southern Counties Gas Co., Los Angeles. Prices are weak at 2.20c, c.i.f.

Structural shape awards totaled 3004 tons and brought the aggregate to date to 25,966 tons. This was the largest weekly total report in nearly two months. The Pacific Coast Steel Corp. took 1800 tons for 48 miles of transmission towers for the San Joaquin Light & Power Co., Fresno, Calif. Other awards include 242 tons for a transit shed in Oakland, booked by the Herrick Iron Works, and 350 tons for the Live Stock building, Sacramento, Calif., taken by the Judson-Pacific Co. Dyer Bros. are low bidder on 1400 tons for a hospital in the Presidio, San Francisco. Prices continue firm at 2.35c, c.i.f. on plain material.

Bookings of cast iron pipe declined considerably this week. The National Cast Iron Pipe Co. secured 147 tons for the government at Manila, P. I. All bids on 204 tons for street improvement work in Compton, Calif., were rejected. New inquiries include 127 tons for San Francisco and 212 tons for the Los Angeles County Water Works District No. 10. Demand for oil country goods is practically at a standstill as most oil companies are adhering to the conservation policy. The Associated Oil Co., San Francisco, is in the market for 900 tons of 6-inch line pipe.

Northwest More Active

Seattle, March 26.—Increased inquiry for iron and steel products is noted in the Pacific Northwest. Awards recently have been fairly large and several important projects are now definitely up for figures.

Construction is more active in Seattle and unemployment conditions have been relieved by the opening of logging and cannery operations. This week contracts were awarded in Seattle for the proposed 19-story Roosevelt hotel, the six-story department store for Fraser-Paterson Co. and a commercial building at Fourth and Pine streets.

Bars, Plates and Shapes

Mill prices are unchanged, shapes and merchant bars at 2.35c, reinforcing at 2.30 and plates at 2.25c, with concessions for desirable tonnages. Local steel mills are on unchanged operations, both plants being well booked, much in carload lots. Pacific Coast Steel Co. took 225 tons for the West Spokane street approach, Seattle. An equal tonnage is involved in the Youngstown place viaduct, bids April 4.

Seattle Boiler Works booked the largest plate job of the week, 490 tons for six tanks for the Union Oil Co.'s terminal addition at Edmonds. The same plant also is furnishing 130 tons for a smokestack and duct work for the Crown-Willamette Paper Co. plant at Camas, Wash. The Chicago Bridge & Iron Works has the contract for furnishing water tanks for Marysville, Wash., and Rock Island, Wash., the latter for the Stone & Webster hydroelectric project. These two jobs require 110 tons of steel. Birchfield Boiler Works took the contract for a pipe line job at Tacoma calling for 100 tons of plates.

Pipe Awards Improve

Cast iron pipe awards this week approximated 650 tons. The largest contract, 350 tons, was taken by the Pacific States Cast Iron Pipe Co. for an improvement at Sunnyside, Wash. American Cast Iron Pipe Co. has the contract to furnish Chehalis, Wash., with 200 tons of monocast. An award for The Dalles, Oreg., went to the Pacific States Cast Iron Pipe Co. Seattle will open bids this week for 300 tons for the Twenty-ninth avenue N. W. improvement, while Wenatchee, Wash., will receive tenders April 14 for 500 tons.

Ford Buys 441,000 Tons of Iron Ore; 1929 Prices Are Reaffirmed

CLEVELAND, April 1.—The Ford Motor Co. closed today for 441,000 tons of Lake Superior iron ore, dividing the order among three producers. The company inquired for 330,000 tons. Last year it inquired for 340,000 tons, purchased that amount at the opening of the season and 20,000 tons later, while in 1928 it purchased 400,000 tons. The company's inquiry this year called for 140,000 tons of basic ore, 85,000 tons of high phosphorus, 55,000 tons of silicious and 50,000 tons of manganiferous. All producers are understood to have quoted 1929 prices, and while all did not share in the business it is definitely reported that the 1929 prices prevailed on the orders that were placed. Other contracts are reputed to have been closed.

Other leading producers also have booked substantial orders for iron ore at last year's prices, some of these being closed Monday and Tuesday this week, marking the opening of the buying movement. The prices will apply on long-term contracts.

The prices are as follows: Old range bessemer $4.80; Mesabi bessemer $4.65; old range nonbessemer $4.65; Mesabi nonbessemer $4.50, and high phosphorus $4.40, delivered, Lake Erie ports.

At the opening of the buying movement March 22, 1929, bessemer pig iron was $18.50, base, valley, in contrast with $19 today, while No. 2 foundry iron was $18, compared with $18.50 today. Ore prices were raised 25 cents last year. The market was strong through 1929, when shipments amounted to more than 65,000,000 tons, whereas the movement this year is expected to be about 55,000,000 tons.

Lake carrying charges have not been determined. Last year was the fifth consecutive year for a repetition of the same lake rates, and the sixth consecutive year for upper and lower lake rail rates.

All Confident In Proxy Contest; Mather Interest In Steel Greater

YOUNGSTOWN, O., April 1.—Fewer charges and countercharges have been hurled in the past few days by advocates and opponents of the proposed sale of the Youngstown Sheet & Tube Co. to the Bethlehem Steel Co., but efforts of both sides to obtain proxies to be voted at the April 8 meeting of Sheet & Tube stockholders at Youngstown, O., have not abated.

At Youngstown today it was estimated that the Bethlehem side has purchased nearly 100,000 shares of Sheet & Tube common, paying a premium of $3 to $10 per share, or about $150 to $160, with the Eaton opposition interests not far behind. This would indicate a total transfer of $30,000,000 worth of stock.

A statement by Cyrus S. Eaton, of Cleveland, leading the opposition, claims 412,571 shares opposed, or more than sufficient to block the merger. The rejoinder of James A. Campbell, chairman of the Sheet & Tube board, and of E. G. Grace, president of Bethlehem, is that the advocates of the merger have sufficient stock pledged to their cause. Of the 1,185,600 shares of Sheet & Tube common now outstanding, 790,400 shares must be voted favorably, 395,201 votes are sufficient to block.

A joint statement by Charles M. Schwab, chairman of Bethlehem, and by Mr. Grace is to the effect Sheet & Tube will be continued as a separate company, with headquarters in Youngstown and the Youngstown name continued on the company's products.

Without regard either to the merit of the situation or to the claims put forth, it may be said that sentiment in both Cleveland and Youngstown the past week has veered toward the belief that the merger will not be consummated at this time. A majority of the stock will be favorable, however, and may effect some working agreement with Bethlehem, it is believed.

Cleveland, April 1.—For some time it has been believed here that a union of the Corrigan, McKinney Steel Co. and the Otis Steel Co., whose plants adjoin, is logical. The passing of control of the Corrigan, McKinney company last week to the Cleveland-Cliffs Iron Co. has been followed by the election of Elton Hoyt II, a partner of Pickands, Mather & Co., to the board of the Otis company. This gives both of the Mather families representation on the Otis board, through W. G. Mather, S. Livingston Mather and D. T. Croxton, of the Cleveland-Cliffs company, and Mr. Hoyt. There has been little open speculation, but it is noteworthy that the community of interest of the Mather family in northern Ohio steelworks and iron interests is becoming more pronounced.

Last December the Pickands, Mather group merged practically all of the merchant blast furnaces in the Great Lakes region into the Interlake Iron Co. This group also is represented on the board of the Empire Steel Corp., producer of sheets; the Newton Steel Co., also a producer of sheets, and the Otis company, sheets and strip.

The William Mather group is strong in the Corrigan, McKinney company and the Otis company. Between the Interlake, Otis, Empire, Newton and Corrigan, McKinney companies, are produced the four products most widely used in the automotive industry—pig iron, merchant bars, sheets and strip. At this time there is nothing official and little speculation concerning such a tieup, but the thread of ownership is distinct.

It would not seem probable that such a group would be lodged with the Bethlehem Steel Co. in event it failed to acquire the Youngstown Sheet & Tube Co. There is no pipemaking capacity in the northern Ohio companies, and the Eaton interests have a 50 per cent control of the Corrigan, McKinney company. Whether united action by the Bethlehem, Youngstown, Mather and Eaton groups would be possible after the present conflict is speculative.

1929 Steel Rail Production Is Up; Heavy Sections Again Show Increase

FOLLOWING two consecutive years of decline, production of steel rails in the United States in 1929 increased, although the upswing amounted to only 2.82 per cent. According to figures compiled by the American Iron and Steel institute, the output was 2,722,138 gross tons, or 74,645 tons better than the 2,647,493 tons of the preceding year. Production was 2,806,486 tons in 1927.

Open-hearth rails constitute 97.8 per cent of the total; bessemer, 0.13 per cent; and all other, 2.07 per cent. Corresponding proportions in 1928 were open hearth 97.46; bessemer 0.10; and all other 2.44 per cent. Rails rerolled from new seconds and new defective rails totaled 10,766 tons, all of open hearth. Those rerolled from old rails amounted to 55,766 tons.

Classified by weight per yard, 141,362 tons were under 50 pounds; 102,944 tons were between 50 and 85; 409,628 tons were between 85 and 100; 1,233,599 were between 100 and 120; and 834,605 were 120 pounds and over. Those under 50 pounds and those from 100 pounds up were the only classifications to show gain.

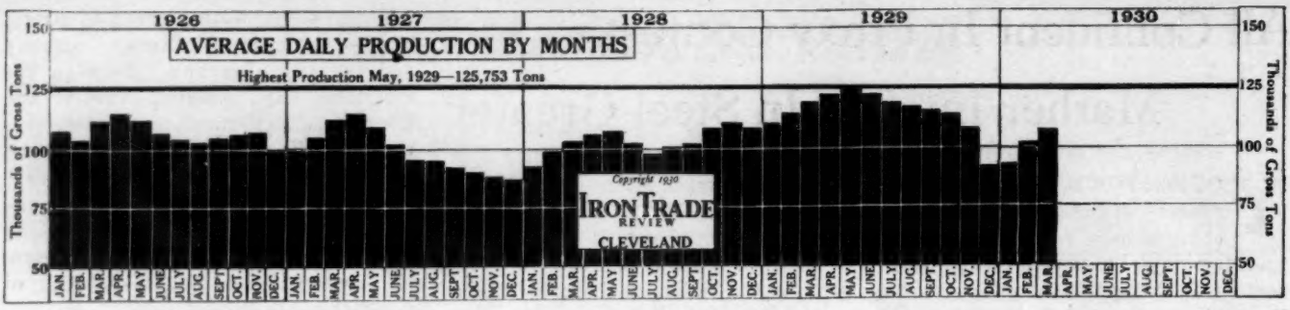
In 1929 alloy-treated rails totaled 1965 tons, compared with 6453 tons in 1928 and 1265 tons in 1927. Only 486 tons were of titanium alloy and 1479 tons of other alloys; corresponding figures in 1928 were 3711 tons of titanium and 2742 of other alloys.

Pennsylvania was first in total tonnage with 763,681 tons from five plants. Alabama and Illinois each has three mills and Ohio and Indiana each two.

Production of Rails by Processes

Years	Open-hearth	Bessemer	Electric	Rerolled*	Total
1914	1,525,851	323,897	178	95,169	1,945,095
1915	1,775,168	326,952	.....	102,083	2,204,203
1916	2,269,600	440,092	.....	144,826	2,854,518
1917	2,292,197	533,325	.....	118,639	2,944,161
1918	1,945,443	494,193	.....	101,256	2,540,892
1919	1,893,250	214,121	50	96,422	2,203,843
1920	2,334,222	142,899	297	126,698	2,604,116
1921	2,027,215	55,559	5	96,039	2,178,818
1922	2,033,000	22,317	.....	116,459	2,171,776
1923	2,738,779	25,877	118	139,742	2,904,516
1924	2,307,533	16,069	.....	109,730	2,433,332
1925	2,691,823	9,687	.....	83,747	2,785,257
1926	3,107,992	12,533	.....	97,124	3,217,649
1927	2,717,865	1,566	.....	87,055	2,806,486
1928	2,580,141	2,718	438	64,196	2,647,493
1929	2,662,163	3,486	723	55,766	2,722,138

*Rerolled from old steel rails.



March Iron Rate Shows Slight Gain

MARCH registered a 3.9 per cent increase in the daily rate of pig iron production and was the third consecutive month to develop improvement over the low point of 1929, reached in December, following a seven-month decline. In spite of this gain, however, it fell considerably below the level of last March and was the poorest March, excepting that of 1928, since 1922.

The daily rate of March—105,520 gross tons—compares with 101,640 tons in February, 91,573 tons in January and 119,662 tons last March.

MONTHLY PRODUCTION

	1930	1929	1928	1927
Jan.	2,888,751	3,433,028	2,855,515	3,101,346
Feb.	2,845,937	3,218,376	2,898,668	2,940,604
Mar.	3,271,122	3,709,518	3,199,175	3,482,107
Total 3 mos.	8,955,810	10,360,922	8,953,358	9,524,057
April		3,663,167	3,181,975	3,424,377
May		3,898,344	3,292,790	3,391,067
June		3,715,104	3,082,340	3,089,726
July		3,782,511	3,072,711	2,954,625
Aug.		3,746,198	3,136,995	2,950,674
Sept.		3,496,454	3,063,593	2,782,500
Oct.		3,588,146	3,373,539	2,812,015
Nov.		3,182,420	3,304,656	2,661,863
Dec.		2,886,917	3,369,784	2,698,208
Total		42,270,183	37,831,741	36,289,112

It was slightly in excess of the rate of March, 1928—103,199 tons.

For the month, output was 3,271,122 gross tons, compared with 2,845,937 tons in February and 3,709,518 tons in March, 1928. For the first quarter production now stands at 8,955,810 tons, contrasted with 10,360,922 tons in the opening quarter of 1929 and 8,953,358 tons in the like period of 1928.

As of March 31 there were 183 of the country's 314 potential blast furnace stacks in blast. This was four more than on Feb. 28. Two merchant stacks were lighted during the month and none was blown out. Five steelworks stacks were added and three blown out.

Relating production to capacity, March was a 76.5 per cent month, compared with 73.7 per cent for February, 66.4 per cent for January and 86.7 per cent for March, 1929.

March production is divided into 622,254 tons of merchant iron, 2,648,868 tons of nonmerchant and 37,376 tons of ferromanganese and spiegeleisen. For all classifications this was a gain over February.

The two merchant stacks blown in last month were those of the Lavino Furnace Co. at Sheridan, Pa., out since November, 1928, and of the Davison Coke & Iron Co. at Neville Island, Pa. The Illinois Steel Co. banked and relighted a Gary stack. The Carnegie Steel Co. added two stacks and dropped one. The Bethlehem Steel Co. lighted a stack at Cambria and the Pittsburgh Steel Co. one at Monessen, Pa., while the Republic Iron & Steel Co. blew out a Haselton stack. The Otis Steel Co. blew out a stack for relining April 1, but this is not included in the March statistics.

RATE OF OPERATION

(Relation of Production to Capacity)

	1930	1929†	1928*	1927‡
January	66.4	80.3	67.8	71.2
February	73.7	83.3	73.6	74.7
March	76.5	86.7	76.1	79.8
April	.....	88.7	78.0	81.2
May	.....	91.1	78.3	77.7
June	.....	89.8	76.0	73.2
July	.....	88.4	73.2	67.7
August	.....	87.3	74.4	67.6
September	.....	84.5	75.2	65.9
October	.....	83.9	79.3	64.5
November	.....	76.9	81.1	63.0
December	.....	66.3	80.2	61.8

†Based on capacity of 50,367,665 tons as of Dec. 31, 1928. *Based on capacity of 49,605,720 tons. ‡Based on capacity of 51,379,400 tons. Capacities computed by American Iron and Steel institute.

AVERAGE DAILY PRODUCTION

	1930	1929	1928	1927	1926
Jan.	91,573	110,742	92,113	100,043	107,039
Feb.	101,640	114,942	99,954	105,021	104,423
Mar.	105,520	119,662	103,199	112,326	111,554
Apr.	.....	122,106	106,066	114,146	114,627
May	.....	125,753	106,219	109,388	112,187
June	.....	123,837	102,745	102,991	107,749
July	.....	122,016	99,120	95,311	104,021
Aug.	.....	120,845	101,193	95,183	103,249
Sept.	.....	116,548	102,120	92,750	105,442
Oct.	.....	115,747	103,824	90,710	107,555
Nov.	.....	106,081	110,155	88,728	107,933
Dec.	.....	91,513	103,702	87,039	99,651
Ave.	99,509	115,808	103,365	99,422	107,126

DIVISION OF PRODUCTION

1929	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	744,448	2,688,580	37,210
Feb.	665,648	2,552,728	34,419
Mar.	740,966	2,968,552	37,997
3 mos.	2,151,062	8,209,860	109,626
Apr.	740,311	2,922,856	44,406
May	772,014	3,126,330	35,598
June	716,715	2,998,389	43,218
July	741,622	3,040,889	41,137
Aug.	682,048	3,064,150	40,527
Sept.	643,197	2,853,257	38,038
Oct.	739,060	2,849,086	39,640
Nov.	737,591	2,444,829	37,328
Dec.	661,343	2,175,574	40,375
Total	8,584,963	33,685,220	469,893
1930			
Jan.	612,406	2,226,345	32,761
Feb.	535,844	2,310,093	26,204
Mar.	622,254	2,648,868	37,376
3 mos.	1,770,504	7,185,806	96,341

MARCH PIG IRON PRODUCTION

	No. in blast last day of month		—Total tonnage made—		—Totals—	
	March	February	Merchant	Nonmerchant	March	February
Ohio	39	40	129,130	595,195	724,325	629,865
Pennsylvania	63	58	103,585	932,129	1,035,714	904,723
Alabama	17	17	119,488	136,998	256,486	225,012
New York	13	13	86,146	118,629	204,775	173,285
Illinois	17	17	118,482	220,460	338,942	296,199
Colorado	3	3				
Indiana	15	15				
Maryland	5	5	7,555	510,787	518,342	457,487
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	1				
Massachusetts	1	1				
Tennessee	0	0	26,333	54,920	81,253	68,719
Utah	1	1				
West Virginia	2	2				
Michigan	3	3				
Minnesota	2	2				
Missouri	0	0	25,537	48,372	73,909	64,443
New Jersey	0	0				
Spiegel and ferro	—all states—		5,998	31,378	37,376	26,204
Total	183	179	622,254	2,648,868	3,271,122	2,845,937

Iron, Steel Imports Up, Exports Off

South American and European Markets Buy Less in February—Advance in Imports Slight as Short Month Helps Reduce Shipments

EXPORT trade of the United States in iron and steel products reached the lowest level in February of any month over the last two years, and this despite having displayed a strong upward tendency in January. In part the decline is to be attributed to the short month, but even if allowances be made for this fact there remains unquestionable evidence that the United States along with the rest of the major steel producing countries is feeling the effects of the almost world wide curtailment of steel purchases. This statement is supported by information which has just come to hand showing that the export trade of both Great Britain and Germany, two of the leading factors in the world trade in iron and steel, suffered sharp declines during February and although data for the other major factors are not yet available there seems little reason to believe that they have fared any better, states the iron and steel division, department of commerce, Washington.

IMPORTS AND EXPORTS

Gross Tons

	—1930—		—1929—	
	Imports	Exports	Imports	Exports
Jan.	42,314	225,090	54,793	274,296
Feb.	43,351	197,426	58,146	259,711
March	.....	.....	52,747	270,925
April	.....	.....	54,337	277,580
May	.....	.....	74,272	261,516
June	.....	.....	63,635	247,811
July	.....	.....	71,378	270,532
Aug.	.....	.....	83,969	242,856
Sept.	.....	.....	60,974	222,408
Oct.	.....	.....	63,226	247,646
Nov.	.....	.....	54,041	241,829
Dec.	.....	.....	47,486	215,242
Total	.....	.....	739,004	3,032,352

Specifically, the United States exported 197,426 gross tons of iron and steel products to foreign markets during February, 27,614 tons less than in January and 62,267 tons less than in February, 1929. The import trade, on the other hand, displayed an upward tendency, adding 1037 tons to the January total of 42,314 tons, to aggregate 43,351 tons. Despite this increase, however, receipts of foreign iron and steel products in February were 14,795 tons less than during the same month of last year.

The average daily movement in the February export trade was 7051 tons—a figure which does not compare unfavorably with the 7261-ton average of January or that of December, 6943 tons. Imports averaged 1548 tons daily, against 1365 tons in January and 1532 tons in December.

The decline in exports was not reflected generally throughout the trade, there being 21 classes of products which returned gains in some amount against 24 which showed some decrease. Of the last group the chief was scrap, which experienced a drop of 18,670 tons, the rest being in comparatively small amount with the losses in steel bars, of 3832 tons, and in galvanized steel sheets of 3391 tons outstanding. In the instances of increased shipments, only those in two classes of products gained more than 1000 tons: hoops, 1798 tons, and plain structural shapes, 1156 tons.

The principal product of the month's trade was scrap, of which 21,258 tons went to Japan and 13,572 tons to Canada. Tin plate exports went to a number of countries. Japan receiving 7175 tons, India 3680 tons, Canada 2904 tons, and China 2566 tons. Four-fifths of the plain structural shapes exported went to Canada and a good part of the remainder to Japan, while three-fifths of the black steel sheets went to Canada and a sixth to Japan. These two markets were also the principal purchasers of fabricated structural shapes during the month, taking well over half the total exports between them.

Statistics of the distribution of the iron and steel exported in February reveal a striking drop in the purchases of two areas—a South Ameri-

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

	February	January
Italy	207	.....
Germany	2	22
Norway	.....	33
United Kingdom	2,836	1,957
Canada	2,090	2,168
Total	5,135	4,180

ORIGIN OF MANGANESE IMPORTS

Gross Tons

	February	January
Germany	.....	16
Soviet Russia in Europe	16,594	21,815
United Kingdom	12	12
Canada	.....	5
Brazil	1,409	10,396
British India	780	2,080
Gold Coast	2,875	3,827
Java	.....	339
Total	21,670	38,490

ORIGIN OF IRON ORE IMPORTS

Gross Tons

	February	January
Sweden	.....	13,501
Canada	70	.....
Cuba	31,000	49,000
Chile	150,218	187,114
Algeria and Tunis	6,100	30,520
Australia	.....	5,000
Spain	7,900	7,700
United Kingdom	50	.....
Brazil	5,302	.....
Persia	2,500	.....
Total	203,140	292,835

ORIGIN OF PIG IRON IMPORTS

Gross Tons

	February	January
Netherlands	100	353
Norway	353	147
Sweden	123	535
United Kingdom	631	2,158
Mexico	.....	3
British India	7,417	5,884
Canada	276	.....
Total	8,900	9,080

ORIGIN OF FEBRUARY IMPORTS

Gross Tons

	Ingots, Blooms, etc.	Steel scrap	Cast iron pipe	Steel bars
Belgium	691	57	492	1,034
France	307	7	1,268	307
Germany	563	.....	289	563
Canada	64	1,529	.....	.....
Sweden	71	49	.....	709
United Kingdom	74	.....	.....	89
Total	1,770	1,642	2,049	3,360

IMPORTS OF IRON AND STEEL PRODUCTS INTO THE UNITED STATES

(In gross tons)

	Feb., 1930	Jan., 1930	Feb., 1929
Pig iron	8,900	9,080	16,299
Ferromanganese and alloys (1)	5,135	4,180	3,325
Ferrosilicon (2)	335	469	794
Ferrochrome (3)	42	45	15
Scrap	1,642	4,055	8,524
Steel ingots, blooms, billets, etc.	1,770	1,785	1,841
Steel bars	3,360	3,299	2,751
Iron bars	111	115	335
Wire rods	1,115	944	595
Hoops, bands, and scrolls	1,731	708	1,536
Poiler and other plate	365	657	982
Sheets, skelp and sawplate	936	2,056	923
Tin plate	13	9	17
Structural shapes	12,402	8,950	9,017
Rails and splice bars	98	599	743
Cast-iron pipe	2,049	952	3,648
Other pipe and tubes	1,617	3,264	4,807
Barbed wire	695	377	349
Round iron and steel wire	275	447	540
Telephone and telegraph wire	1	.....	.....
Flat wire and strip steel	100	209	167
Wire rope and strand	155	297	153
Other wire	21	55	38
Nails, tacks, and staples	274	595	558
Bolts, nuts, rivets and washers	49	26	23
Castings and forgings	160	141	166
Total	43,351	42,314	58,146

(1) Manganese content. (2) Silicon content. (3) Chromium content.

ca, which took only 8.8 per cent of the total in February against 16.2 in January, and Europe, whose takings dropped from 13.6 to only 7.8. On the other hand, the trade with North and Central America and the West Indies increased from 40.8 of the total to 49.5, while that with the Far East rose from 28.5 to 33.2.

Canada was, of course, the leading market, taking a wide variety of products among which the chief were scrap and plain structural shapes. Japan purchased an equally wide range of products, with scrap and tin plate predominating. Scrap likewise led in the shipments to Mexico and with tin plate a good second, while in the trade with Italy this material was easily the outstanding item. Shipments to the Philippine islands were marked by the large trade in galvanized steel sheets.

Exports of iron ore from the United States totaled only 3613 tons in February—the entire quantity going to Canada. This figure compares with 9249 tons shipped during January.

After three months of continually declining tonnage the United States import trade in iron and steel products turned upward, increasing the January total by 1037 tons to reach 43,351 tons. This trend was not reflected by the trade as a whole, however, as only eleven classes of material showed increases against 15 returning losses. The largest of the first named was the gain in shapes, 3455 tons, while other outstanding gains were those in cast iron pipe, 1097 tons, in steel bars, 1061 tons, and in hoops and bands, 1023 tons. The principal reduction was that in scrap, 2413 tons, followed by "other pipe," 1647 tons, and sheets, 1120 tons.

The chief item in the month's trade was shapes, Belgium supplying 6206 tons, Germany 3412 tons, and France 2626 tons of the total of 12,402 tons. Pig iron was the second item, India supplying 7417 tons of the 8900-ton total. The United Kingdom provided 2836 tons and Canada 2090 tons of the ferromanganese receipts, while of the steel bars imported 1034 tons came in from Belgium.

For the second consecutive month Belgium was the chief source of imports, supplying a total of 9542 tons of which shapes made up 6206 tons. Germany was second with 9200 tons, 3412 tons of which was shapes and 1104 tons "other" pipe. India supplied 7417 tons of pig iron, while France exported to this country a wide range of products totaling 5558 tons, of which 2624 tons was shapes and 1268 tons cast iron pipe. The 4640 tons received from Canada included 2090 tons of ferromanganese and 1529 tons of scrap.

The import trade in iron ore failed to continue its upward trend and as a result receipts dropped off to only 203,140 tons from the January figure of 292,835 tons. Chile was the source of 150,218 tons of the February total, while 31,000 tons came from Cuba, and lesser amounts from Spain, Algeria and Tunisia, Brazil and Persia. Imports of manganese dropped to 21,700 tons, of which 30 tons was Cuban ore imported free of duty. Soviet Russia supplied 16,594 tons, the Gold Coast 2875 tons and Brazil 1409 tons.

Exports of Metalworking Machinery

(In number except where otherwise specified)

	February		January through February	
	1930	1929	1930	1929
Engine lathes	95	72	153	144
Turret lathes	34	38	67	84
Other lathes	2,439	70	2,532	133
Vertical boring mills and chucking machines	24	27	51	63
Thread-cutting and automatic screw machines	69	63	159	170
Knee and column type milling machines	27	33	71	74
Other milling machines	51	65	176	130
Gear-cutting machines	20	44	62	77
Vertical drilling machines	119	39	200	75
Radial drilling machines	11	8	14	18
Other drilling machines	187	82	468	369
Planers and shapers	16	49	61	100
Surface grinding machines	32	8	58	8
External cylindrical grinding machines	33	77	84	165
Internal grinding machines	89	40	115	85
Tool grinding, cutter grinding, and universal grinding machines	114	115	338	200
Pneumatic portable tools	1,477	2,015	3,441	3,832
Chucks for machine tools	2,111	1,347	4,555	3,779

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE UNITED STATES

(In gross tons)

	Feb., 1930	Jan., 1930	Feb., 1929
Pig iron, not including ferroalloys	1,987	2,133	4,118
Ferromanganese and spiegeleisen	152	125	42
Scrap	43,195	61,865	21,552
Ingots, blooms, etc.	3,021	3,329	775
Iron bars	170	231	337
Steel bars	8,025	11,857	17,390
Alloy steel bars	469	1,041	3,102
Wire rods	4,373	3,481	3,539
Plates	10,827	10,061	18,965
Skelp	5,080	4,754	4,249
Iron sheets, galvanized (1)	638	705	10,449
Steel sheets, galvanized (1)	7,058	10,449	
Steel sheets, black	11,943	12,959	18,747
Iron sheets, black	979	1,217	1,175
Hoops, bands, and strip steel	5,121	3,323	6,740
Tin plate, terneplate, etc.	23,497	25,026	26,687
Structural shapes, not fabricated	15,265	14,109	21,533
Structural shapes, fabricated	11,146	11,021	14,690
Tanks, complete and knocked down (2)	1,329	1,245	.....
Metal lath	378	407	560
Steel rails	6,844	5,877	16,149
Rail fastenings, switches, frogs, etc.	1,237	1,669	2,785
Boiler tubes	1,784	1,478	1,818
Casing and oil line pipe	7,175	7,742	18,990
Malleable-iron screwed pipe fittings	1,259	1,495	1,093
Cast-iron screwed pipe fittings	550	636	780
Cast-iron pressure pipe and fittings	1,080	1,055	863
Cast-iron soil pipe and fittings	1,343	1,301	670
Black and galvanized welded wrought-iron pipe (3)	1,756	2,801	
Black and galvanized welded steel pipe (3)	7,507	9,660	12,096
Plain wire	2,083	2,891	5,498
Barbed wire and woven wire fencing	2,884	2,414	5,642
Woven wire screen cloth	144	187	201
Wire rope	568	412	724
Insulated wire and cable, iron or steel	78	44	66
Other wire and manufactures	797	888	1,189
Wire nails	532	517	1,589
Nails, other than wire	535	591	671
Tacks	26	43	44
Bolts, nuts, rivets, etc., except railway	1,245	1,122	1,279
Iron castings	811	664	1,270
Steel castings	442	606	1,339
Car wheels and axles	1,049	908	1,579
Horseshoes	7	3	26
Forgings	1,127	748	1,560
Total	197,426	225,090	259,693

(1) Combined prior to 1930.
(2) Heretofore shown in a miscellaneous classification.
(3) Combined prior to 1930.

DESTINATION OF IRON AND STEEL EXPORTS

(In gross tons)

Country of Destination	Feb., 1930	Jan., 1930	Feb., 1929
North and Central America and West Indies	97,745	91,867	123,944
Canada and Newfoundland	77,136	73,411	99,429
Cuba	4,554	3,469	5,746
Guatemala	362	319	483
Honduras	658	711	1,908
Mexico	8,600	9,114	7,703
Panama	3,222	1,076	2,994
Salvador	75	360	334
British West Indies	1,565	1,251	2,242
Other West Indies	1,302	1,808	2,589
Other Central America	271	348	516
South America	17,369	36,315	47,015
Argentina	2,673	6,034	13,366
Brazil	2,401	4,831	8,027
Chile	3,103	9,236	3,768
Colombia	1,009	5,672	5,690
Peru	1,606	1,710	4,751
Uruguay	1,760	1,038	2,252
Venezuela	3,968	7,362	8,814
Other South America	850	432	347
Europe	15,347	30,632	23,780
France	997	793	4,387
Germany	57	2,652	32
Italy	7,562	8,487	8,647
Poland and Danzig	.....	1	1,817
Soviet Russia in Europe	1,163	430	927
Spain	23	10,313	639
Sweden	410	551	223
United Kingdom	3,319	5,394	4,237
Other Europe	1,816	2,011	1,871
Far East	65,556	64,032	64,199
British Malaya	1,217	1,082	1,646
China	4,161	6,929	9,163
Netherlands East Indies	4,529	3,119	10,153
India and Ceylon	5,057	3,354	4,982
Hong Kong	293	1,071	781
Japan	40,414	39,010	22,293
Kwantung	71	393	4,494
Philippine Islands	6,915	5,677	6,357
Australia	1,229	1,578	2,476
New Zealand	628	522	202
Other Asia and far eastern markets	1,042	1,297	1,652
Africa	1,409	2,244	1,755
Union of South Africa	557	123	612
Egypt	119	1,964	688
Mozambique	470	136	128
Other Countries	263	21	327

Newton Steel Earnings Set New Record

The Newton Steel Co., Youngstown, O., steel sheet producer with plants at Newton Falls, O., and Monroe, Mich., in 1929 earned $1,947,151 after all charges including preferred dividends, the annual report shows. This set a new high record. Last year's earnings compare with $1,220,000 in 1928.

Figured on a comparative basis these earnings are equal to $7.33 a share on the 264,000 shares of common stock outstanding at the end of 1929. In the previous year, earnings were $12.20 a share on the 100,000 shares then outstanding or $4.62 a share on the total number of shares now outstanding.

The statement shows that the cost of financing last year to provide some of the funds for the new Monroe plant have been written off from surplus.

Earnings on the preferred stock were equal to $95.41 a share or more than 16 times dividend requirements.

After the payment of $130,500 in preferred and $750,123 in common dividends Newton added $1,275,000 to its surplus.

Central Alloy's Profit Rises 23 Per Cent

Net profit of the Central Alloy Steel Corp., Massillon, O., for 1929 was $6,046,594, according to the pamphlet report just mailed to stockholders. The figure includes results from the Interstate Iron & Steel Co. from the first of 1929 to the date of its acquisition in December by Central Alloy.

Earnings reported by the company for 1928 were $4,903,341. Net for 1929 represents an increase of approximately 23 per cent.

Total assets of the company at the close of the year were $95,832,350 compared with $74,957,318 as of December 31, 1928. The increase represented principally the addition of Interstate assets.

Sloss-Sheffield's 1929 Profits Decline

Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., reports for the year ended Dec. 31, 1929, net income of $576,741, after all charges, including depreciation, depletion and interest charges.

After providing for dividends on preferred stock, this is equal to $1.07 a share on 100,000 shares of common stock outstanding.

The company reported for 1928 net income of $1,079,857, equal to $6.10 a share on common stock.

Farrell Heads Group To Confer on Scrap

New York, April 1.—American Iron and Steel institute has appointed James A. Farrell, president of the United States Steel Corp., as chairman; Eugene Grace, president of Bethlehem Steel Co., and L. E. Block, chairman of Inland Steel Co., Chicago, as a special committee, to confer with the committee of the Institute of Scrap Iron and Steel. The committee was appointed as the result of a petition filed by the Institute of Scrap Iron and Steel with the board of American Iron and Steel institute. The committees are expected to discuss direct dealing between consumers and producers of scrap and other matters concerning the scrap supply.

The committee of the Institute of Scrap Iron and Steel will be announced later, although it is understood that Benjamin Schwartz, director general of the institute, will be the chairman of this group. The importance which scrap iron and steel has assumed as a raw material for the steel industry, and its relation to the conservation of iron ore and other natural resources has centered the attention of the leaders of both the steel industry and the scrap iron industry on the problems growing out of the accumulation, preparation and distribution of more than 25,000,000 tons of scrap annually.

Gray Iron Institute Has More Local Groups

Since the inauguration of the plan for local chapters of the Gray Iron institute, groups have been formed in many foundry centers of the country. Among chapters most recently organized are one in Chicago, completely organized and officers elected; one in the Worcester-Boston district, organized and definite arrangements made for study of the institute's cost system; and one in the Buffalo district, preliminary arrangements completed and officers elected.

The annual meeting of the Southern Hardware association, and the Texas Hardware Jobbers association will be held at Galveston, Tex., April 7-9 in conjunction with the convention of the American Hardware Manufacturers association.

Lake Superior Ore Held to Uniform Quality

Iron ore shipped from the Lake Superior district in 1929 contained an average of 51.18 per cent iron natural, according to the Lake Superior Iron Ore association. The average in 1928 was 51.15 per cent. Ten years ago it was 51.69 per cent. In all the ore shipped in 1929 the average amount of phosphorus was 0.1 per cent; silica 8.48 per cent; manganese 0.80 per cent, and moisture 11.24 per cent. These percentages do not deviate to an important extent from those of recent years. The quality of the product is maintained by mixing various grades.

Sixty-three per cent of the ore shipped was low phosphorus, nonbessemer. This grade contained an average of 50.73 per cent iron natural, compared with 51.5 per cent, the guarantee for standard. The average percentage of phosphorus was 0.078 per cent; silica 7.94 per cent; manganese 0.69 per cent, and moisture 12.39 per cent.

Twenty-four per cent of all the ore was bessemer, which averaged: Iron natural 54.57 per cent; phosphorus 0.04 per cent; silica 8.10 per cent; manganese 0.37 per cent, and moisture 9.39 per cent. In both the low phosphorus nonbessemer and bessemer ore the percentage of iron natural was slightly higher in 1929 than ten years ago.

Spang, Chalfant Prospers

Spang, Chalfant & Co., Pittsburgh, reports for 1929 net earnings of $4,243,243 after all charges, compared with $3,226,188 in 1928. Fourth quarter earnings totaled $941,567, against $985,247 in the corresponding 1928 period. Last year's profits were equal after preferred dividends to $4.57 a share on the common stock. The company reduced its funded debt $501,000 during the year, leaving $8,829,000.

Cast Pipe Profits Rise

The pamphlet report of the Warren Foundry & Pipe Corp., Wharton, N. J., and subsidiaries for 1929 shows a net profit of $293,517 after depreciation, taxes and charges, equal to $1.47 a share earned on 199,300 no par shares of capital stock, compared with $15,744, or 6 cents a share on 250,000 shares, in 1928. Total revenue was $4,441,397 against $4,169,841 in 1928.

All directors of the National Acme Co., Cleveland, have been re-elected for another year.

Industrial Men in the Day's News

Homer S. Trecartin, To Build and Manage a Bearing Plant in Moscow

MECHANICAL and electrical engineering, inventing and manufacturing of numerous electrical devices, lecturing and writing for the business press, have comprised his industrial effort.

AFTER about 30 months of intensive effort for the Roller Bearing Co. of America, he will locate in Russia to establish one of the world's largest bearing plants.

NOT yet 38 years of age, he has had three businesses of his own, as well as affiliations with six different companies, not including Sharikopodskipnekstroy.

TRAINED as a mechanical and electrical engineer, developing as an inventor, and progressing far as a writer and lecturer on technical and managerial subjects, Homer S. Trecartin has made an enviable record in building up the business of the Roller Bearing Co. of America, Trenton, N. J., during his two and a half year affiliation with it. He resigned as general manager, effective April 1, as noted in IRON TRADE REVIEW of March 27, to become identified with the Russian organization known as Sharikopodskipnekstroy.

This company, which is represented in the United States by Amtorg Trading Corp., New York, plans the erection of a ball and roller bearing plant in Moscow, Russia, to be one of the largest production units of its kind in the world. Mr. Trecartin, who is only 37 years of age, is to direct the design and equipment of the plant to be completed by next fall and in operation prior to Dec. 31. He also is scheduled to have charge of plant output after it is in operation. He demonstrated remarkable ability in the Roller Bearing organization by recently completing arrangements for the distribution of its products in all industrial centers of America and in every foreign country utilizing the bearings it makes.

Born in Brooklyn, N. Y., in 1892, Mr. Trecartin obtained his engineering education at Brooklyn Polytechnic institute and at Pratt institute, Brooklyn. He then established an experimental shop at Sag Harbor, L. I., where he built speedboat engines and developed electrical equipment and devices. On many of these he later was granted letters patent. In 1918 he became affiliated with E. W. Bliss Co., Brooklyn, and two years later was made general manager of Cortland Electric Co., Brooklyn, of which Elmer I. Sperry was president. He was placed in charge of 350 employes engaged in the manufacture of gyroscopic compasses and precision instruments for the electrical control of vessels, as well as radio and airplane controls.

After two and a half years Mr. Trecartin severed this connection to organize the Tanner Engineering Co., Brooklyn, to develop and manufacture electrical and scientific specialties. He later became identified with General Electric Co., Schenectady, N. Y., in its publicity and advertising department. After 18 months, he located in Beverly, Mass., as chairman of the consulting committee of the experimental department of United Shoe Machinery Corp. In 1923 he left to try his hand once more in the formation and operation of his own company. He organized the Electrical Utility Corp., Boston, to manufacture equipment under his own patents. Its products included a gasoline motor appliance for tunnel stern speedboats, an electric dishwater, etc.

After the sale of this company he joined the Hyatt division of the General Motors Corp., Harrison, N. J., as commercial research engineer, but after 18 months he was placed in charge of special research for the Power Transmission association. It was during this period he delivered numerous lectures and likewise amplified his already substantial list of contributions to the technical

and business press. Under the title of "Factory Administration," a series of his articles was published in book form.

His next affiliation was with the Roller Bearing Co. of America, Newark, N. J., which later, in order to provide for greater expansion, purchased the Mercer automobile plant at Trenton, N. J., where it now is located. Last year he was promoted to general manager of the company.

Since he is grandson and greatgrandson on both sides of his family of celebrated ship owners and sea captains, it is only natural that he should derive his principal recreation from boating. He has raced numerous sailboats on Long Island sound, including the QUEEN OF THE SOUND, and has participated in numerous speedboat races.

Men of the Industry

HENRY I. POOR has been elected president and director of Lafayette Steel Products Co., Lafayette, Ind., to succeed J. F. Bellinger, resigned.

H. H. Johnson, who has had charge of the company's sales of steel automobile trunks, metal baskets, etc., from the Indianapolis office, is the new vice president.

E. J. Smith, who early in the year resigned as treasurer of a manufacturing company at Stoughton, Wis., to become identified with the Lafayette Steel Products Co., has been elected treasurer and general manager. H. E. Whitney was made secretary.

* * *

E. C. Hummel has resigned as Lakeside works manager of Otis Steel Co., Cleveland.

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A. E. Reed, export manager of the W. S. Tyler Co., Cleveland, has been elected president of the Cleveland Export club of the chamber of commerce for the coming year.

* * *

George A. Miller, formerly connected with the Dodge Mfg. Co., Mishawaka, Ind., now is associated with the Austin Co., Cleveland, engineer and builder.

* * *

J. J. Trant Jr. has been appointed superintendent of Dickson Car Wheel Co., Houston, Tex., to succeed the late James F. Maloney whose death was reported in IRON TRADE REVIEW of March 20.

* * *

Frederick P. Palen, formerly vice president of the Newport News Shipbuilding & Dry Dock Co., has joined the United States Lines Inc. as director of construction of the two large transatlantic liners to be built for that company.

* * *

John Bode, at one time an engineer for Mackintosh-Hemphill Co., Pittsburgh, but latterly identified with Wellman Engineering Co., Cleveland, now is affiliated with the sales department of Aetna-Standard Engineering Co., Youngstown, O.

* * *

W. H. Dutcher, who for nearly 24 years was purchasing agent for the former Atlas Portland Cement Co., has been appointed purchasing agent for the Universal Atlas Cement Co., Chicago, a subsidiary of the United States Steel Corp.

* * *

H. P. Halladay, who for the past year has been associated with the sales department of American Forging & Socket Co., Pontiac, Mich., has been appointed district manager at Chicago in its recently established branch office.

* * *

S. H. Pittman has returned to the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to become manager of the sales promotion section, domestic appliance department at Mansfield, O. He has been on the advertising staff of a Cincinnati newspaper.

* * *

R. J. Allen, for 12 years metallurgical engineer, Rolls-Royce Co. of America, Springfield, Mass., has been appointed research engineer with the Worthington Pump & Machinery Corp., Harrison, N. J. Mr. Allen was graduated from the University of Toronto, Toronto, Ont., in 1913. Prior to his association with the Rolls-Royce company he spent several years in both electrical and metallurgical work.

* * *

Frank Riffle, who has been European director of sales and engineering, located in Paris, France, for Kearney & Trecker Corp., Milwaukee, for the past two years, is returning to the United States to become Chicago office manager. He is succeeded by William Mirgeler, formerly salesman in the Detroit district for the company, who will sail for France the latter part of April.

* * *

D. J. Campbell, head of Campbell-Wyant-Cannon Foundry Co., Muskegon, Mich.; Adam Pyle, head of Pyle Pattern Works, Muskegon, and Mathias Young, president of Lake Shore Machine Co., also of Muskegon, have been added to the board of directors of St. Joseph Electrical Steel Castings Co., St. Joseph, Mich. Other members of the directorate are J. J. Theisen, re-elected president of the company; James P. McKeon, vice president, general manager and treasurer; R. W. Moon, of St. Joseph, Mich., and L. E. Noel, of Grand Rapids, Mich. Lester Neuman was named secretary for the ensuing year.

* * *

Dr. Richard Seligman, new president of British Institute of Metals, was born in London in 1878. He was educated at Harrow, and in 1895 at Central Technical college City and Guilds institute, under Professor Armstrong. In 1898 he was awarded an associateship. He then studied chemistry at the University of Heidelberg, and transferred to Zurich in 1900, being engaged in research work with Prof. Eugen Bamberger. Returning to Heidelberg, he gained his doctorate in 1902.

After a period in the Niagara Research Laboratories, Niagara Falls, N. Y., he became chief chemist to the United States Zinc Co., Pueblo, Colo. In 1905 he commenced the specialization in his main work with his appointment as chief chemist to the British Aluminum Co., which appointment he relinquished in 1909 to form the Aluminum Plant & Vessel Co. Ltd., Wandsworth, London. Activities of this company have been devoted to the development of aluminum in the service of industry, originally in welding processes which brought about large scale operations, and latterly in the associated technological work involved in the use of aluminum in connection with foodstuffs, chemicals, etc.

* * *

Justin McCarthy has been designated in charge of cost accounting for Schill Bros. Co., Crestline, O., and Clem A. Schill is in charge of purchasing. These changes were

brought about by the resignation of Leo Weaver, assistant to the president, as noted in IRON TRADE REVIEW of March 13.

* * *

Henry E. Hill has resigned as purchasing agent of North & Judd, New Britain, Conn., to become connected with Beardsley & Wolcott Co., Waterbury, Conn.

* * *

C. M. Stevenson, until recently with the Philadelphia and Baltimore sales office of the Colonial Steel Co. and Vanadium-Alloys Steel Co., Pittsburgh, has been appointed sales manager for these companies at St. Louis, with headquarters at 712 Cass avenue.

* * *

G. H. Jewell, formerly assistant to the late W. D. Hess, western sales representative of Glamorgan Pipe & Foundry Co., Lynchburg, Va., has been appointed western sales manager of the company with headquarters in the Peoples Gas building, Chicago.

* * *

R. F. Cuyler of Lansing, Mich., has been named general manager of the Ray-Glo Corp., Athens, O., stove manufacturer. The company recently was purchased by Fred R. Beasley, Athens, and Southern Ohio Power Co.

* * *

James J. Jordan recently was elected a vice president of Cushman Chuck Co., Hartford, Conn. A. P. Sloan is chairman, H. E. Sloan president, A. Boyd Sloan treasurer, Harry W. Hultgren assistant secretary, and Edward L. Field assistant treasurer.

* * *

W. T. Hazel, who as noted in IRON TRADE REVIEW of March 20, has been transferred to Tulsa, Okla., to represent International Derrick & Equipment Co., Columbus, O., has also been elected a vice president of the company. He has charge of sales in Oklahoma, Kansas and the Rocky Mountain district.

* * *

Oscar W. Loew, director of advertising and sales promotion for Truscon Steel Co., Youngstown, O., for the past six years, has been appointed vice president. Prior to becoming identified with Truscon's organization, Mr. Loew had achieved notable success in this country and in Canada in advertising and sales work.

* * *

F. B. Anderson, formerly secretary of Toledo Wheelbarrow Co., Toledo, O., manufacturer of steel wheelbarrows, scrapers, etc., has been elected vice president and treasurer to succeed the late W. L. Schumacher, whose death was noted in IRON TRADE REVIEW in the issue of March 27.

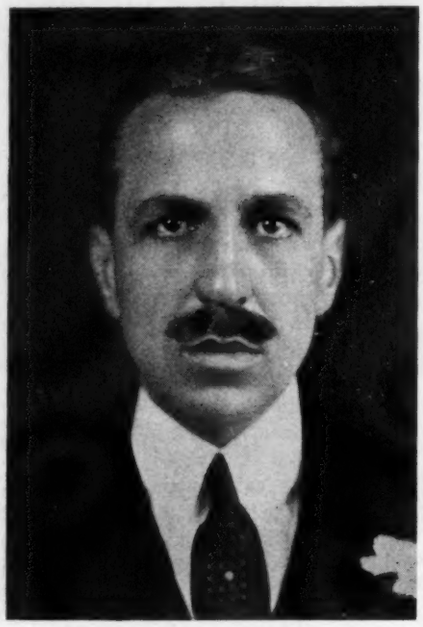
W. T. Davis, assistant treasurer, has likewise been appointed secretary in succession to F. B. Anderson.

* * *

Albert Roellecke, formerly of New York office of Otto Wolff & Co., and later vice president of Steel Union Co. Inc., 17 John street, New York, the American office of Vereinigte Stahlwerke, A. G., Dusseldorf, Germany, has resigned to become connected with Haleberger Huette, Brebach on the Saar, Germany, maker of cast iron pipe and fittings. Mr. Roellecke has assumed his new duties.

* * *

C. A. Collins, president of Hanna Furnace Co., now moving from Cleveland to Detroit, and John C. Williams, president of Weirton Steel Co., Weirton, W. Va., have been added to the executive committee of National Steel Corp., Pittsburgh. Other executive committee members are E. T. Weir, chairman of the board; George M. Humphrey, of M. A. Hanna Co., and George R. Fink, president of National Steel Corp. and Great Lakes Steel Corp.



ELTON HOYT II
Partner of Pickands, Mather & Co., Cleveland, since Jan. 1, 1922, but in its ore department since 1911, has been added to the directorate, Otis Steel Co., Cleveland

* * *

John S. Walker Jr., manager of the Huntington, W. Va., branch office of Sullivan Machinery Co., Chicago, since its establishment in 1912, and a member of the Sullivan organization since 1901, has retired to engage in the banking business in Huntington.

Morley S. Sloman, associated with the company's Pittsburgh office for the past 14 years, has been appointed Huntington manager to succeed Mr. Walker.

* * *

L. A. Gerber, former western district sales manager for United States Chain & Forging Co., Pittsburgh, was appointed general sales manager on April 1.

W. L. Reilly, for many years a member of headquarters staff, was named assistant general sales manager.

L. K. Robinson, formerly head of New England sales activities, was made eastern district manager with headquarters in New York.

Harley Morris, formerly salesman in the western division, was appointed western district manager with headquarters in Chicago, to succeed Mr. Gerber.

* * *

C. E. Cook, formerly branch sales manager at Detroit for Square D. Co. of Detroit, Milwaukee and Peru, Ind., has been appointed assistant sales manager at Detroit, in charge of meter and entrance switch, voltage tester sales. R. M. Heasley, formerly sales representative at Grand Rapids, Mich., succeeds Mr. Cook and is succeeded by George H. Schubert, formerly sales representative at Detroit. Henry M. Foley has been added to the sales staff at Detroit.

E. L. Pittenger, formerly Pittsburgh branch sales manager, has been appointed assistant sales manager in charge of Square-duct and industrial safety switches, Detroit. R. R. Eckenrode, formerly sales representative at Philadelphia, succeeds Mr. Pittenger at Pittsburgh.

* * *

Richard B. Hynes, formerly assistant secretary and assistant treasurer, Atlas Portland Cement Co., now is secretary of Universal Atlas Cement Co., 208 South La Salle street Chicago.

T. E. O'Connor, formerly assistant to the treasurer and secretary of the Atlas company, with headquarters at New York, has been appointed treasurer of the Universal Atlas company, and will return to Chicago.

A. J. Joyce, formerly assistant credit manager of Universal company, now is assistant treasurer of the Universal Atlas company. E. M. Johnson, for 12 years eastern credit manager of the former Universal company, now is assistant treasurer at Pittsburgh of the new company. J. L. Medler, with the Atlas organization for 28 years, latterly assistant treasurer since 1911 is named assistant treasurer at New York of the Universal-Atlas company.

* * *

Martin J. Luther has become special

representative for the Monarch Machine Tool Co., Cincinnati, in the Chicago and Milwaukee districts, with headquarters in the Chicago offices of Manning, Maxwell & Moore Inc. Mr. Luther formerly had been manager for the Kearney & Trecker Corp., Milwaukee.

* * *

T. M. Girdler, chairman of the new Republic Steel Corp., Youngstown, O., has been added to the board of directors of Goodyear Tire & Rubber Co., Akron, O.

* * *

R. S. Coulter, for 11 years combustion engineer at the Sparrows Point, Md., plant of Bethlehem Steel Co., has resigned to become engaged in private consulting practice at Lebanon, Pa.

* * *

Dr. H. W. Rich, of Glendale, Mo., formerly of Jerseyville, Ill., has been appointed vice president and general sales manager of Kauffman Metal Products Co., St. Louis. He has sold his interest in the Rich Electric Co., St. Louis.

* * *

B. M. Clark, formerly assistant sales manager of Heltzel Steel Form & Iron Co., Warren, O., has been appointed sales manager to succeed William J. Savage, who resigned, as noted in IRON TRADE REVIEW of March 27.

* * *

Lee M. Clegg, identified with Thompson Products Inc., Cleveland, for 11 years, has been appointed general sales manager. After graduating from Case School of Applied Science in 1918, he started as stock boy and clerk in the production department and now directs sales which annually amount to approximately $13,000,000.

* * *

Walter Jones, for 17 years connected with the Trumbull and Liberty plants at Warren, O., of Republic Iron & Steel Co., Youngstown, O., has resigned as superintendent of sheet and tin divisions of both plants. He will be succeeded by William McNamara, formerly of Elwood, Ind. Mr. Jones was active in building the Warren plants.

* * *

Ferdinand Eberstadt, Frank Altschul and G. Munro Hubbard have been added to the board of directors of Gulf States Steel Co., Birmingham, Ala., the first mentioned two having been added to the executive board. Vacancies caused by the resignation of Henry V. Poor as executive board member and director, R. A. Mutchell and Lewis L. Clarke, as directors thus are filled. Edward M. McIlwain resigned as executive board member but remained as director.

* * *

Charles J. Boon has assumed his new duties as manager of sales at Cincinnati for American Steel & Wire Co., Chicago. He has been with the company 20 years, being assigned to Cincinnati as assistant manager of sales, following the World war, in which he served as lieutenant.

* * *

Leslie C. Whitney, for the past five years assistant head of physical laboratories of one of the largest wire manufacturers in the United States, has become affiliated as chief metallurgist with the mill organization of Copperweld Steel Co., Glassport, Pa. Mr. Whitney was graduated from Lehigh university in 1922 as metallurgical engineer, and his work since has covered all phases of round and flat wire production, open-hearth, rolling, drawing and fabrication of wire products. At present he is supervising the installation of equipment in the Copperweld company's new research laboratory.

Republic Steel's Net 110 Per Cent of 1928

The Republic Iron & Steel Corp., Youngstown, O., which is being merged in the Republic Steel Corp., in its pamphlet report for 1929 shows earnings last year increased approximately 110 per cent compared with the prevous year. Net profit for the 12 months ended Dec. 31, 1929, amounted to $9,882,899 compared with $4,642,450 for 1928, and $3,018,282 for 1927.

Net profit of the constituent companies of the Republic Steel Corp. for the year ended Dec. 31, 1929, was $20,526,812, after depreciation, federal taxes, interest and other charges. This compares with $15,643,855 in 1928.

The balance sheet of the Republic Iron & Steel Co. as of Dec. 31, 1929, places total assets at $161,655,400 compared with $151,434,763 one year before, and surplus at $32,144,099 compared with $29,480,356 one year before.

Newton Operations Up

Youngstown, O., April 1.—Newton Steel Co. has started to make all kinds of specialty sheets at its Newton Falls plant, and is maintaining operations there at 75 per cent. The new Monroe plant near Detroit, which started earlier this month, has increased from about 40 per cent initial operation to about 65 per cent.

See Tariff Revision in Effect June 1

Washington, April 1.—The house of representatives on Monday again began consideration of the tariff bill, this time in connection with the sending of it to conference. It is expected that the bill will go to conference some time the latter part of this week. It will remain there one to two months, with those who are fond of predicting stating that the bill will become law about June 1.

The conference on the part of the senate will include Senator Smoot of Utah, chairman of the finance committee, and Sentors Watson of Indiana and Shortridge of California for the Republicans, and Senators Simmons of North Carolina and Harrison of Mississippi for the Democrats. Senator Shortridge is a conferee by virtue of the fact that Senator Reed of Pennsylvania, who outranks him and would have been a member of the conference, is in London attending the naval conference.

The house will be represented by Representative Hawley of Oregon, chairman of the house committee on ways and means, Representatives Treadway of Massachusetts and Bacharach of New Jersey for the Republicans, and Representatives Garner of Texas and Collier of Mississippi for the Democrats.

Refractories Institute Announces Meeting

The American Refractories institute will hold its annual meeting at the Greenbriar hotel, White Sulphur Springs, W. Va., May 19-20. A program pertinent to the work of the refractories industry is being planned. Dorothy Texter, 2218 Oliver building, Pittsburgh, is secretary of the institute.

Bay View Sale Delayed

Proposed purchase for $5,000,000 by the city of Milwaukee of the Bay View rolling mill property of the Illinois Steel Co. at Milwaukee for use in developing the outer harbor, is in suspense as the result of an appraisal made by the Milwaukee Real Estate board, naming $2,992,000 as the actual value. Options expired March 8 and have not been extended. A new appraisal by the city real estate agent has been ordered by the common council in the hope that a compromise may yet be effected with officials of the steel company.

Wide Full-Finished Sheet Extras Are Reduced

Sheet manufacturers producing wide full-finished sheets have issued a new card revising the width extras, effecting reductions of from $1 to $12 per ton, the larger declines coming in extra wide widths. The new card has 14 size brackets against 12 on the old, 36 to 38-inch and 38 to 40-inch taking the place of the 36 to 40-inch classification, and 70 to 72-inch being added. It has five gage divisions instead of four on the old, No. 22 being given a classification by itself for the reason that No. 22 is made in 48 to 50-inch widths whereas No. 23 to 24 is not. In only one case is an increase brought into effect by the new card, i.e., in No. 10 to 16 gage, 50 to 52-inch material now has an extra of 40 cents, whereas it formerly was 35 cents, an increase of $1. In all other cases, reductions rule.

STEEL EXTRAS

Automobile Sheets, Metal Furniture Sheets, Full Finished, or Full Pickled Sheets, and All Grades of Patent Leveled Sheets

Widths Gage	Over 36″ to 38″	38″ to 40″	40″ to 44″	44″ to 48″	48″ to 50″	50″ to 52″	52″ to 54″	54″ to 56″	56″ to 58″	58″ to 60″	60″ to 66″	66″ to 68″	68″ to 70″	70″ to 72″
10-16	.10	.10	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.20	1.30	1.80
17-18	.10	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00	1.30	1.40	1.90
19-21	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00	1.10	1.40	1.50	2.00
22	.40	.40	.80	1.25	1.25	....	....	....	....	....	....	....	....	....
23-24	.40	.40	.80	1.25	....	....	....	....	....	....	....	....	....	....

As shown by the accompanying table, which gives the new extras only, in No. 10 to 16-gage material, the extras on 48 to 50-inch, 54 to 56-inch and 68 to 70-inch are reduced $1, 56 to 58-inch and 60 to 66-inch, $2; and 58 to 60 as well as 68 to 70-inch, $4. In No. 17 to 18 gage, 44 to 48½-inch declines $1, 48 to 50-inch $2, 52 to 54-inch $3, 54 to 56-inch $4, 50 to 52-inch $5, 56 to 58 and 66 to 68-inch $9, 60 to 66-inch $10 and 58 to 60 as well as 68 to 70-inch $12. Decreases of $2 to $12 a ton are also brought about in No. 19 to 21 gage sheets. Gages 22, 23 and 24 carry the same extras as formerly, with 48 to 50-inch added in No. 22 only.

Should Prepare Scrap

Sale of unprepared scrap by dealers direct to any particular consumer was condemed as unfair to other consumers and inimical to the best interests of the scrap iron industry, by Benjamin Schwartz, director general of the Institute of Scrap Iron and Steel Inc., at a recent meeting of the Reading chapter in Bethlehem, Pa.

"The only reason for the existence of the scrap iron dealer is the complete service which he renders," declared Mr. Schwartz. "That service consists of gathering, preparing and distributing scrap to markets where needed most and in functioning as the governor of the steel machine. The dealer who allows his equipment to be idle and does not use his machinery in the preparation of scrap, will eventually not only put himself out of business, but he will undermine the very foundation of the service of the industry."

Iron and Steel Payrolls in February Decrease

Washington, April 1.—While the iron and steel industry showed a slight increase in employment in January compared with December as previously noted payrolls, decreased, according to the bureau of labor statistics.

Reports from 196 iron and steel plants gave their December employment as 256,665 increasing in January to 260,358, or 1.4 per cent. Their payrolls dropped from $7,672,426 to $7,662,412, or 0.1 per cent.

Forty-one cast iron pipe plants reported December employment as 10,922 decreasing in January to 10,332 or 5.4 per cent. Payrolls declined from $253,401 to $218,553 or 13.8 per cent.

Reports from 173 structural ironwork shops gave December employment as 30,816, and January as 29,755, a decrease of 3.4 per cent. Their payrolls dropped from $942,391 to $858,999 or 8.8 per cent. Reports from 145 machine tool plants gave December employment as 37,966 and January as 36,431, a decrease of 4 per cent. Their payrolls decreased 9.8 per cent, from $1,222,471 to $1,102,197.

Detroit Steel Products Co., Detroit, has redeemed its preferred stock and capital now is 250,000 shares no par value.

Expect Carloading Rise in Second Quarter

Pittsburgh, April 1.—Freight shippers in the Allegheny region anticipate a net increase of 5 per cent, or 50,922 cars, in their freight movement during the second quarter of this year as compared with the corresponding period of 1929. This gain was indicated at a meeting of the Allegheny regional advisory board here March 13. This estimate is the opinion of 713 carload shippers of freight, representing approximately 92 per cent of the total production of the district comprising western Pennsylvania, eastern Ohio, northern West Virginia and the panhandle of Maryland.

The largest anticipated increases by industries are: Cement 33.5 per cent, boilers 36.9 per cent, machinery 14.6 per cent, coal and coke 9.3 per cent, building sand 14.5 per cent, gravel 11.3 per cent. The iron and steel industry anticipates a decrease of 3.7 per cent in second quarter shipments. Decreases of 14.8 per cent are expected in brass, bronze and copper, 1 per cent in aluminum and its products, 7.8 per cent in iron and steel scrap, 25 per cent in sanitary ware and 7.9 per cent in tin plate. Iron and steel tonnage, which is the second largest of any commodity produced in the district, constitutes about 27 per cent of the total. The predicted decrease of 3.7 per cent represents 10,118 cars.

Empire Steel Increases Working Capital

The Empire Steel Corp., Mansfield, O., increased its working capital $525,598 in 1929, paid $387,941 in preferred dividends and $273,000 in bond interest, in addition to retiring $160,000 of bonds, W. H. Davey, president of the company, reports. Current assets now stand at $5,628,122 compared with $5,308,487 one year ago. Current liabilities were decreased from $6,574,995 at the close of 1928 to $6,475,562 at the close of 1929 while capital and surplus was increased from $15,128,660 at the close of 1929 to $16,440,705 at the close of last year. The annual meeting of stockholders of the Empire Steel Corp. was held at Mansfield March 20. Mr Davey denies recent reports that the corporation's plant at Ashtabula, O., will be closed permanently, stating that it will be the next one of three plants now idle to be placed on the active list.

Sargent Specialty & Machine Co., Muskegon, Mich., has increased capital from $10,000 to $25,000.

Outlook Good Despite Car Need Decline

Report recently made by some 2000 industries to the Great Lakes Regional Advisory board meeting at Detroit, March 26, indicates a 10 per cent reduction in carload-shipping requirements in that district for the second quarter of 1930. Iron and steel, with 56,500 cars estimated for the quarter this year against 62,876 last year, will register an estimated decrease of 10.1 per cent.

In general an optimistic note was noted by many of the committees reporting on specific commodities. Decreases in forecasts at this time were, in many cases, more than balanced by an expression that a gradual but steady increase of the industrial tempo will bring production, sales and employment to normal marks for the third and fourth quarter of the year. A brief but general statement embodying the gist of the committees' reports is contained in the expression that freight-car needs will be at their highest the second quarter of this year since 1923, with the exception of 1929.

Ores and ore concentrates, chiefly iron in this section, while registering a 19.5 per cent drop at 157,000 cars, will, nevertheless, be at the highest since 1923, with the exception of 1929. Railroads, shipbuilding and other industrial activities, now present scenes of activity, instilled confidence into the outlook as viewed by several prominent traffic commissioners.

Forecast for this district, comprising southern Michigan, northern Ohio, northwestern Pennsylvania, western New York and northwestern Indiana follows in part with comparisons in iron and steel and associated products for this quarter and second quarter of 1929:

	Quarterly Forecast—Carloads		Estimated Incr.	Decr.
Commodity	Actual 1929	Estimated 1930	%	%
Coal and coke	15,875	14,000	.....	11.8
Ore and concentrates	194,985	157,000	.....	19.5
Iron and steel	62,876	56,500	.....	10.1
Machinery and boilers	15,163	14,800	.....	2.4
Automobiles, trucks and parts	190,976	153,649	.....	19.5
Agricultural implements and vehicles other than automobiles	4,895	5,000	2.1	.....

Reports Gray Iron Wages

Bench molders' wages in February averaged 81.4 cents an hour, according to the Gray Iron institute Inc. in summarizing reports from 188 gray iron foundries in the United States and Canada, employing 13,180 workers. Averages for some of the other classifications of labor follow: Floor molders 83 cents; loom molders 78 cents; machine molders 74.6 cents; helpers 50.6 cents; apprentices 56.1 cents; molders' foremen 97.3 cents; coremakers, men 73.7 cents; patternmakers 82.9 cents; chippers 53.3 cents; flask makers 64.2 cents; rough grinders 54.6 cents; common labor 48.4 cents.

Canadian Iron Output Low in February

Toronto, April 1.—Production of coke pig iron in Canada during February was 70,600 long tons, 19 per cent under the output of 87,079 tons for January, and 25 per cent less than the 93,939 tons in February, 1928. Compared with January, basic iron advanced to 51,262 tons from 48,898 tons, while foundry iron dropped to 18,522 tons, and malleable iron declined to 816 tons from 2108 tons. For the two months ended February, cumulative production was 157,679 tons, compared with 181,703 tons for the corresponding period of 1929. Production of ferroalloys during February, at 4821 tons, was 31 per cent lower than the 6943 tons reported for January.

Output of steel ingots, and direct steel castings for February, at 106,612 tons, was slightly under the 115,200 tons for January and also below the 117,445 tons produced in February, 1929. The reduction from January was due to the lower output of steel ingots, basic open-hearth ingots having dropped from 105,043 tons to 97,211 tons, electric ingots from 2144 tons to 1873 tons, and alloy ingots from basic furnaces from 1458 tons to 880 tons. Direct steel castings were slightly higher at 6648 tons, against 6556 tons in January. For the first two months of the year ingot and casting production totalled 221,812 tons, compared with 233,705 tons for the corresponding two months of last year.

Michigan Steel's Income Rises 43 Per Cent

Earnings of the Michigan Steel Corp., Detroit, increased 43 per cent in 1929, according to the annual statement issued by the company.

Net income for the year was $1,652,280, after all charges including taxes. This is equal to $7.63 a share on the 216,520 shares of capital stock outstanding.

Earnings for 1928 amounted to $1,149,902 or $4.77 a share on the 220,000 shares of stock then outstanding.

F. o. b. Pittsburgh

(*Concluded from Page* 91)

on its new Ambridge plant, where wrought iron will be produced by the Aston process but although the installation is expected to be completed some time during the spring, no definite date has been set for the commencement of operations. A report to the effect that control of the Byers company had passed from the hands of the Hillman interests accompanied a recent flurry in the stock but has been declared to be unfounded.

* * *

PRODUCERS and consumers of iron and steel products in the Pittsburgh district are joining in the fight to prevent the application of higher freight rates which the interstate commerce commission has scheduled to go into effect within the local industrial district May 20. In addition to a considerable sum that it is feared would be involved in the loss of business to Pittsburgh industries as the result of this rate increase, plants would be required to pay more than $1,000,000 additional on their annual freight bill. Middle West markets in particular would be in danger of being lost because of the inability of local steel producers to compete with mills in the Chicago switching zone.

A hearing before the Pennsylvania public service commission is being asked inasmuch as the new tariff would be effective primarily in this district. Practically all local steel companies have joined in the gathering of figures purporting to prove that the new schedule discriminates against them.

Donner Steel's Net Up

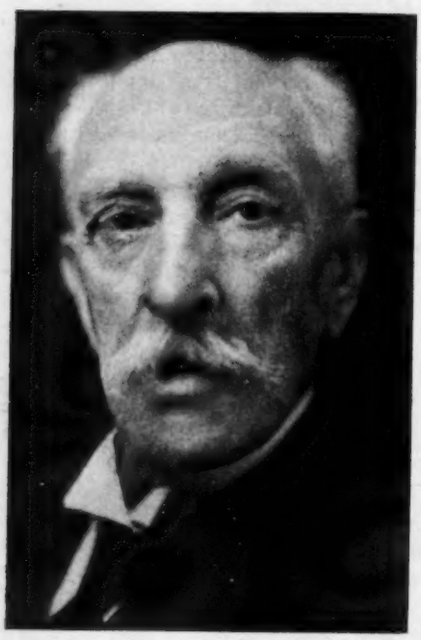
The Donner Steel Co., Buffalo, now a unit of the Republic Steel Corp., reports net income for 1929 amounting to $1,882,993, after all charges and taxes. This compares with $1,343,271 for 1928. The consolidated balance sheet as of Dec. 31, 1929, shows total assets of $32,101,651, and capital surplus of $9,781,429.

Furnace Fittings, Subject

Washington, April 1.—The trade practice conference of the furnace pipe and fittings industry will be held April 11 at the Congress hotel, Chicago, with Commissioner Charles H. March presiding. Eighty per cent of the industry is expected to be present.

Obituaries

E. R. HYDE, president, Bridgeport Safety Emery Wheel Co., Bridgeport, Conn., for 40 years, died of heart disease March 25 at his home in that city. Mr. Hyde was born in West Chesterfield, Mass., and received his early education at Wesleyan academy, Wilbraham, Mass. In 1876 he made his first contact with



E. R. HYDE

the abrasive industry when he had charge of the Northampton Emery Wheel Co.'s exhibit at the centennial exhibition in Philadelphia. He became a salesman for the Union Stone Co., Boston, manufacturer of machinery and grinding wheels. He was offered and refused the position of manager of sales of this company and commenced to experiment in grinding wheel manufacture in Springfield, Mass. In 1880 he organized the Springfield Glue & Emery Co. He invented and developed the first automatic knife grinder and in 1883 designed the wet tool grinder. In 1890 the company was removed to Bridgeport, Conn. Three years later O. H. and D. B. Hyde withdrew from the company, removing to Springfield, O., forming the Safety Emery Wheel Co. E. R. and C. L. Hyde and D. T. Homan organized the Bridgeport Safety Emery Wheel Co., with E. R. Hyde as president. He was one of the first to apply direct drive to grinding machines and modern sectional grinding wheels had their start in the wheels developed and patented by Mr. Hyde. He has been interested in the work of the Grinding Wheel Manufacturers' association of the United States and Canada.

* * *

John Sheehan, manager of the service division of Truscon Steel Co., Youngstown, O., died recently in Cincinnati, from apoplexy.

* * *

George W. Shaw, 59, general manager for C. S. Davis & Co. Inc., Forty-sixth street and First avenue, Brooklyn, N. Y., tin plate, died March 23. Born in Brooklyn, Mr. Shaw had long been identified with the metal business of the New York metropolitan district. He held his recent position for 10 years and prior to that was affiliated with Dickerson-Van Dusen & Co., metal dealers, in Manhattan.

* * *

Nicholas F. Brady, 52, chairman of the board of New York Edison Co., New York, and director in more than 50 corporations, died at his home in that city, March 27, following an illness of several weeks. Born in Albany, N. Y., Oct. 25, 1878, he was graduated from Yale in 1899. He then became affiliated with the New York Edison Co., in which his father, the late Anthony N. Brady, was largely interested. In later years he was chiefly instrumental in the consolidation of various utility companies in the New York metropolitan area. Included among numerous companies in which he was a director were Union Carbide & Carbon Corp., United States Pipe & Foundry Co., Anaconda Copper Mining Co. and Andes Copper Mining Co. Mr. Brady was a member of the American Institute of Electrical Engineers and various other organizations.

* * *

Eugene Maxwell Moore, 39, vice president and director, Manning, Maxwell & Moore Inc., New York, machine tools, died at New York, March 27, following a brief illness. Mr. Moore was a brother of Charles Arthur Moore, president of the company, and son of the late Charles Arthur Moore, one of its founders. Except for his service in France in the World war, he had been actively connected with the company since 1913. A chevalier of the Legion of Honor of France, Mr. Moore served as a captain in the engineer corps during the World war, winning his commission from the rank of private. He also acted as liaison officer for the United States and French armies. Born

DAVID P. THOMPSON

Director and assistant to the president of Inland Steel Co., Chicago, whose death in Florida, March 24, was noted in IRON TRADE REVIEW of March 27

at Brooklyn, N. Y., he prepared for Yale university, but entered the employ of the company which his father had founded after three years in the banking field.

* * *

William D. Taylor, 80, for the past 19 years president of the George Worthington Co., Cleveland wholesale hardware house, died March 30, at his home in Cleveland Heights, O. Mr. Taylor entered the employ of the Worthington company in 1866 when he was 17 years old. He was made a partner in the firm in 1880. The name of the company became the George Worthington Co. and Mr. Taylor was made a director. He was named vice president in 1906 and in 1911 he became president. Two weeks ago he was re-elected president to serve his twentieth term.

European Steel Demand Is Quieter

Middlesbrough Pig Iron Sales Stimulated—Continental Pig Iron Entente Also Reduces Prices—Germany and Poland Complete Commercial Treaty

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, April 1.—(*By Radio*)—A substantial increase in pig iron business at Middlesbrough is noted since prices were reduced recently, reviving the hope that producers in that district will regain their markets in Scotland and on the Continent. Consumers in Scotland have been importing pig iron from France and India. Some demand for marked bars is the only active feature of the Staffordshire iron trade. Orders for structural steel are small and Sheffield steelworks need business. Manufacturers of rolling stock are not fully engaged. The market for tin plate has improved, while demand for galvanized sheets is quiet.

Iron and steel markets in France and Belgium are dull. A revival in business with South America is expected soon. Some activity in semifinished steel, sheets and rods is reported in Germany.

Germany's new commercial treaty with Poland provides for a maximum annual export of 50,000 tons of steel from Poland to Germany, while Germany is to supply Poland with 165,000 tons of scrap. The French-Belgian-Luxemburg pig iron entente has been reorganized and export prices have been lowered.

British Steel Export Demand at Low Point

LONDON, March 21.—(*European Staff Service*)—Reports from all centers are to the effect that iron and steel export business is dull. The fact that the recently-raised price level on most continental products is being maintained is not of much assistance to the British industry, except that less shipments of continental iron and steel are being effected toward Great Britain. With regard to competition on overseas markets, demand is so small that it is not sufficient to really test prevailing conditions. Export demand for British steel in Great Britain is extremely limited, and shipments of British pig iron also are restricted to small tonnages. Indirectly, however, British works are to obtain the benefit of contracts for 8 out of the 20 motor tankers placed by the Anglo-Saxon Petroleum Co. Ltd. These motor tankers are about 11,500 tons each, and their construction will require a substantial tonnage of steel. Although prices of continental iron and steel delivered in the Midlands still are well below domestic prices, little business is being given to French and Belgian producers by British firms as the bounty on British steel partly balances the difference and domestic delivery is better.

Export demand on the continent also is reduced to its lowest. The French industry as a whole is in a comparatively satisfactory position, because of activity of the domestic market, which makes up for the restricted business being done abroad. In Germany a more confident feeling prevails in the steel export market, and prices for sheets are somewhat firmer. From Brussels, which is a center for export transactions, it is reported that conditions are absolutely dull, except in semifinished steel. However, many plants appear to have their order books sufficiently filled to keep them going for a time, due to business

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 31	*British* Gross Tons U. K. Ports	*French* Metric Tons Channel Ports	*Belgium and Luxemburg* Metric Tons Channel Ports	*German* Metric Tons Rotterdam or North Sea Port
Export Prices f. o. b. Ship at Port of Dispatch—By Cable				
PIG IRON	£ s d	£ s d	£ s d	£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.44 3 7 6*	$16.31 3 7 0	$16.31 3 7 0	$16.31 3 7 0
Basic-Bessemer	15.95 3 5 6†	15.10 3 2 0	15.10 3 2 0	15.83 3 5 0
Hematite, Phosphorus 0.02-0.05	18.51 3 16 0	24.70 630*	....	17.78 3 13 0
SEMIFINISHED STEEL				
Billets	$29.83 6 2 6	$22.89 4 14 0	$22.89 4 14 0	$22.89 4 14 0
Wire rods	41.40 8 10 0	30.43 6 5 0	30.43 6 5 0	30.43 6 5 0
FINISHED STEEL				
Standard rails	$40.18 8 5 0	$31.65 6 10 0	$31.65 6 10 0	$31.65 6 10 0
Merchant bars	1.74c 8 0 0	1.18c 5 7 6	1.18c 5 7 6	1.18c 5 7 6
Structural shapes	1.68c 7 15 0	1.12c 5 1 6	1.12c 5 1 6	1.12c 5 1 6
Plates, ship, bridge and tank	1.79c 8 5 0	1.44c 6 10 6	1.44c 6 10 6	1.44c 6 10 6
Sheets, black, 24 gage	2.17c 10 0 0	2.26c 10 5 0	2.26c 10 5 0	2.33c 10 12 0
Sheets, galvanized, 24 gage, corrugated	2.47c 11 7 6	2.57c 11 13 9	2.57c 11 13 9	2.97c 13 10 0
Bands and strips	2.17c 10 0 0	1.29c 5 17 6	1.29c 5 17 6	1.29c 5 17 6
Plain wire, base	2.06c 9 10 0	1.44c 6 10 6	1.44c 6 10 6	1.54c 7 0 0
Galvanized wire, base	3.04c 14 0 0	1.82c 8 5 0	1.82c 8 5 0	1.89c 8 12 0
Wire nails, base	2.39c 11 0 0	1.49c 6 15 0	1.49c 6 15 0	1.56c 7 2 0
Tin plate, base box 108 pounds	$ 4.44 0 18 3	....	....	$ 9.01 1 17 0

Domestic Prices at Works or Furnace—Last Reported	*French* Francs		*Belgian* Francs		*German* Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$17.65 3 12 6	$19.21	490(2)	$17.58	630	$20.30 85
Basic pig iron	17.05 3 10 0	20.58	525(1)	14.79	530	21.73 91
Furnace coke	3.90 0 16 0	6.59	168	6.28	225	5.13 21.50
Billets	29.83 6 2 6	24.30	620	22.60	810	28.89 121
Standard rails	1.79c 8 5 0	1.46c	810	1.73c	1,330	1.51c 140
Merchant bars	1.74c 8 0 0	1.27c	705	1.25c	965	1.52c 141
Shapes	1.83c 8 10 10	1.26c	700	1.22c	940	1.50c 138
Plates, ship, bridge and tank	1.95c 9 0 0	1.46c	810	1.52c	1,170	1.71c 158
Sheets, black, 24-gage	2.28c 10 10 0	2.72c	1,510	2.73c	2,100	2.43c 225
Sheets, galvanized 24 gage, corrugated	2.58c 11 17 6	3.56c	1,975	3.38c	2,600	3.78c 350
Plain wire	2.06c 9 10 0	1.94c	1,075	2.15c	1,650	2.43c 225
Bands and Strips	2.17c 10 0 0	1.44c	800	1.56c	1,200	1.77c 164

*Francs

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 17s 6d ($4.26) f. o. b. Ferromanganese £19 6s 0d ($93.99) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

which has been transacted outside of the iron and steel exchange, but on the whole, the volume of new business is extremely limited.

The fact that prices fixed by agreement between the various producing-countries are under the supervision of the European steel entente may contribute toward maintaining the market firm. These prices are fixed as follows for the principal commodities: 2-inch billets, £4 14s ($22.65) f.o.b. port of shipment; merchant bars, £5 7s 6d ($26); beams, £5 1s 6d ($24.-35); wire rod, £6 5s ($30.25); for hoops and bands the price has been fixed by the recently-formed syndicate at £5 17s 6d ($28.40); ¼-inch plates, £6 8s ($31); rails, £6 10s ($31.50).

German Steel Imports Decline Sharply

Berlin, March 21.—(*European Staff Service*)—Exports of iron and steel from Germany in 1929 were 5,575,468 metric tons, and with the addition of scrap they totaled 5,813,358 tons. Compared with those of 1928, and excluding scrap, last year's exports were 18 per cent higher, and compared with those of 1927 they were 29 per cent higher.

Among the principal items shipped from Germany in 1929, pig iron figured at 387,756 metric tons, against 254,705 tons in 1928 and 320,211 tons in 1927. Exports to the United States were reported as nothing. Among commodities for which the highest export figures were registered were bars, shapes, hoops and bands, 1,352,967 metric tons, compared with 1,131,365 tons in 1928 and 940,260 tons in 1927; plates and sheets, black and galvanized, 686,872 tons, against 422,111 tons in 1928 and 510,901 tons in 1927; wire rod and wire products, 572,720 tons, 533,412 tons and 514,040 tons respectively; rails and track material, 422,238 tons in 1929, 494,223 tons in 1928 and 387,113 tons in 1927; forged tubes, 368,391 tons in 1929, compared with 338,078 tons in 1928 and 272,223 tons in 1927; forgings and malleable castings, 258,-066 tons, 202,766 tons and 215,689 tons respectively. The highest export figure for the United States was that for merchant bars, of which 50,813 tons were shipped, followed by forged tubes, 23,289 tons, medium-sized sheets, 3512 tons, and hoops and bands, 16,077 tons.

Imports of iron and steel into Germany in 1929 amounted to 1,460,-032 metric tons; compared with 2,-042,991 tons in 1928 and 2,251,161 tons in 1927. There figures show that in 1929 imports decreased by 28.75 per cent compared with 1928 and by 35 per cent compared with 1927. The tonnage of scrap imported in 1929 was 358,419 metric tons, against 354,444 tons in 1928 and 645,-679 tons in 1927.

Entente Meets Obstacle; British Merchants Oppose Classification

BRUSSELS, March 21.—(*European Staff Service*)—Belgian iron and steel market conditions are unsatisfactory. Prices fixed by the entente are adhered to, but business is lacking. Merchant houses which had effected purchases before the rise in prices now are trying to dispose of these tonnages, but find it practically impossible to do so. Semifinished steel is the only bright spot, and there have been some substantial orders. However, all mills are ready to take business. Various orders of 2000 or 3000 tons have been placed.

Meetings of the managing committee of the entente have taken place. One of the important questions discussed has concerned British merchant firms, which originally were classified in class B and which should receive a commission of 1s (24c) on merchant bars, 6d (12c) on semifinished steel, 1s 6d (36c) on hoops and bands and 9d (18c) on skelp. The reason they were included in that class, and not in class A where the commissions are double those allowed to class B merchants, is because they could not undertake to effect their purchases exclusively with the works affiliated to the entente, and, furthermore, they could not submit to the examination of their books by the entente committee of inquiry, which condition applies to merchants belonging to class

Franc—2.78c

A. In view of this situation, British merchant houses have strongly protested against this treatment, and the Steel Merchants' association has supported their claim to be included in class A; in fact, the association has threatened the continental group with a demand on the part of the British government addressed to the governments of Belgium, France, Germany and Luxemburg. This being so, the entente has decided to examine the question closely at the next meeting, to be held in Paris.

Extras for hoops and bands have been established, and it is found that there are certain contradictions between this list and the list applying to flats, certain sizes being found in both lists at different prices, and, in some cases, the extra for flats being higher than for hoops. The question of the export price to be applied for shipment to Switzerland also has been taken up, and the examination of f.o.b. prices applying to certain ports for which freight rates differ according to the final delivery point. To overcome this difficulty it has been decided to fix c.i.f. prices for these destinations. No change has been made in the basis prices fixed by the entente.

British Imports Gain, Exports Lower

London, March 21.—(*European Staff Service*)—Imports of pig iron and ferroalloys into Great Britain in February were the largest since October, 1927. Of the pig iron imported, 14,308 tons were basic pig iron. Of the imports of steel, 53,212 tons were semi-finished products, of which 22,717 tons came from Belgium, followed by Germany and France. In addition, 38,-495 tons of sheet bars and tin plate bars came into the country, of which 34,594 tons came from Belgium.

February exports of pig iron and ferroalloys were the lowest registered since January, 1928. Comparisons follow, in gross tons:

	—IMPORTS—		—EXPORTS—	
Mon. ave.	Pig iron and ferroalloys	Other iron and steel	Pig iron and ferroalloys	Other iron and steel
1927	50,715	316,455	27,580	322,100
1928	9,935	231,390	37,895	317,210
1929	12,310	222,410	45,430	319,520
1930				
Jan.	15,770	294,546	40,445	311,401
Feb.	24,252	235,144	26,865	267,422

British Output Grows

London, March 21.—(*European Staff Service*)—Production of pig iron in Great Britain in February was below January, but greater than in February, 1929. It included 189,100 tons of hematite, 233,500 tons of basic, 129,700 tons of foundry and 19,900 tons of forge pig iron.

Comparisons follow, in gross tons:

(Gross tons)

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	338(*)	855,000	638,600
1927	149	607,700	758,100
1928	132	550,900	710,400
1929	162	631,600	804,560
1930			
Jan.	159	650,000	771,100
Feb.	162	597,000	776,400

(*) Average for year.

German Trade Steady

Berlin, March 21.—(*European Staff Service*)—Exports of pig iron, ferro-alloys and other iron and steel products, including scrap, from Germany in January included: Bars, shapes, hoops and bands, 134,297 metric tons; semifinished steel, 62,581 tons; plates and sheets, 51,947 tons; rails and railroad track material, 32,217 tons; wire rod and wire, 30,239 tons; forgings and malleable castings, 22,835 tons; forged tubes, 28,568 tons. The tonnage of scrap exported in January was 25,228 metric tons.

The following table gives the figures for January, compared with the monthly averages of 1929, 1928 and 1927, in metric tons:

	—IMPORTS—		—EXPORTS—	
	Pig iron and ferro-	Other iron	Pig iron and ferro-	Other iron
Mon. ave.	alloys	and steel	alloys	and steel
1927.....	23,895	217,505	29,910	347,645
1928.....	25,535	174,250	24,585	394,575
1929.....	14,765	137,435	36,115	448,330
1930				
Jan.	22,004	105,127	33,153	488,245

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa., has a contract from Federal Shipbuilding & Dry Dock Co., Kearny, N. J., for all under-deck motors and control for two tankers being built for the Standard Shipping Co., New York. It includes four 300-kilowatt and two 175-kilowatt generators, two automatic carbon pile voltage regulators, six 200-horsepower main cargo oil pumps, two 75-horsepower stripping pumps and smaller equipment.

* * *

RAYBESTOS-MANHATTAN CO., Bridgeport, Conn., has bought the stock of the Wright & Corson Co., Milford, Conn., manufacturer of rivets and rivet-setting machinery.

* * *

OHIO ELECTRIC & CONTROLLER CO., Cleveland, has changed its name to the Ohio Electric Mfg. Co. The main office and plant of the company is located at 5900 Maurice avenue.

* * *

TIDEWATER STRUCTURAL MATERIALS CORP. has moved its New York offices from 271 to 79 Madison avenue. J. J. Jones is district manager.

* * *

DOMINION WELDING & ENGINEERING CO. LTD., Montreal, Que., has established a branch plant at 1129 Shaw street, Toronto, Ont. Martin Stirling has been made manager.

* * *

DESPATCH OVEN CO., Minneapolis, manufacturer of industrial ovens, has appointed L. H. Emrick, 424 Book building, Detroit, its district sales representative for Toledo and Michigan.

* * *

CARTER RADIO CO. and Utah Products Co., both of Chicago, have established a branch at 559 College street, Toronto, Ont., to manufacture radio parts to supply radio set manufacturers.

* * *

CLEVELAND & BUFFALO TRANSIT CO., Cleveland, will open nightly steamer service from Cleveland to Buffalo April 15, and from Buffalo to Cleveland April 16. Service by this company to Port Stanley, Ont., will be inaugurated June 20.

* * *

AMERICAN FORGING & SOCKET CO., Pontiac, Mich., has opened a sales office at 608 South Dearborn street, Chicago. H. P. Halladay, who has been associated with the sales department for the past year, has been made district manager.

* * *

NEW ENGLAND FUEL & TRANSPORTATION CO. is building additional coke ovens at its plant at Everett, Mass. A battery of 67 ovens and two of 41 ovens each are under construction, with capacity of 3600 tons of coal per day.

* * *

BRIGGS & STRATTON CORP., Milwaukee, manufacturer of automobile locks, bodies and portable gasoline motors, has bought the Loclif Co., Toledo, O., owner of patents covering a window lift manufactured by Briggs & Stratton.

* * *

WESTFIELD NUT CO., Westfield, Mass., is planning to increase its floor space 50 per cent to accommodate ten additional automatic machines. Production will be increased from 5,000,000 to 7,500,000 units per month.

* * *

WEAN ENGINEERING CO. INC., Warren, O., has taken an order from the Gulf States Steel Co. for a six-pack heating furnace for its plant at Alabama City, Ala. Producer gas will be used as fuel. This brings the number of these furnaces in operation to 79.

* * *

LINCOLN ELECTRIC CO., Cleveland, manufacturer of electric arc welders and motors, has opened a sales office at 338 Barnard street, Saginaw, Mich., in charge of J. E. Luter; at 225 East Columbia street, Fort Wayne, Ind., in charge of D. H. Carver, and at Oil City, Pa., in charge of E. D. Anderson.

* * *

HUDSON VALLEY FUEL CORP., Troy, N. Y., has placed an order with the Koppers Construction Co., Pittsburgh, for 31 Becker by-product ovens with annual carbonizing capacity of 275,000 tons. Gas producers will be used to heat the ovens, to release the maximum quantity of gas.

* * *

VICTORY ENGINEERING & SALES CO., 5259 Western avenue, Detroit, has been formed in connection with the Victory Machine & Tool Co., Detroit. It will conduct a business in engineering, processing and designing. The latter company builds special machinery, tools, dies, jigs and fixtures.

* * *

WILLIAM G. HARVEY CO., Syracuse, N. Y., and Buffalo, N. Y., has been appointed sales representative in these districts for the complete line of the Modern Tool Works division of the Consolidated Machine Tool Corp. of America, including die heads and chasers, chucks, collets, stud setters, milling cutters and threading machines.

* * *

CHICAGO PNEUMATIC TOOL CO., New York, has opened branch offices in the Perrine building, Oklahoma City, Okla., Philcade building, Tulsa, Okla., and Merchants and Manufacturers building, Houston, Tex. Service stations and warehouses have been established at Oklahoma City and Houston, where machinery and parts for servicing will be carried in stock.

* * *

FLETCHER-THOMPSON INC., engineer and architect, Bridgeport, Conn., and Newark, N. J., Samuel M. Green Co., Springfield, Mass., and Charles H. Moores Co. Inc., New York, have associated themselves, retaining their individual identities, and offer their combined services in industrial, terminal and warehouse engineering. Offices will be maintained in the four cities mentioned, as in the past.

* * *

MATHEWS CONVEYOR CO., Ellwood City Pa., has changed the location of its Pittsburgh office from the McCance block to the Grant building. F. M. Fish, formerly in charge of that office, has severed his connection with the company and Sidney Wasley, formerly manager of the Youngstown district sales office, has been made manager of the Pittsburgh office.

Albert M. Kerr, formerly of the home office sales department, will assist Mr. Wasley.

* * *

MOTOR WHEEL CORP., Detroit, has bought the Cleveland Welding Co., manufacturer of tire rims, by an exchange of stock.

* * *

VULCAN ENGINEERING WORKS LTD., Vancouver, B. C., has bought the Wallace Foundry Co. Ltd., on Granville island.

* * *

WEIRTON STEEL CO., has moved its Cleveland sales office from the Bulkley building to the Leader-News building. D. M. Price is in charge.

* * *

MILTON PRAY CO., Los Angeles, San Francisco and Seattle, has been made Pacific coast representative for LaSalle Steel Co., Chicago.

* * *

BARTLESVILLE ZINC CO., Bartlesville, Okla., is in liquidation, having decided to retire from business. Its land, buildings, equipment and machinery are being offered for sale.

* * *

GLOBE STEEL TUBES CO., Milwaukee, has moved its eastern sales office to the Lincoln building, 60 East Forty-second street, New York. R. R. Lally is in charge, as manager of sales.

* * *

AMERICAN AIR FILTER CO. INC., Louisville, Ky., holding company for the Reed, Midwest and National air filter companies, has consolidated the three, which will operate as one organization under this name.

* * *

JAMES T. CASTLE, merchant engineer, Pittsburgh, has moved to 424 First avenue, where better quarters have been obtained. Boilers, air preheaters, turbines, pumps, engines and generating sets will be handled, as in the past.

* * *

OKMULGEE GAS ENGINE CO., Okmulgee, Okla., rebuilder of gas engines, is constructing a branch shop at Seminole, Okla., 40 x 80 feet. Other shops are operated at Beggs, Okmulgee and Houdenville, Okla. Fred Korp is president and general manager.

* * *

WAUKESHA MOTOR CO., Waukesha, Wis., has orders booked for the next four months, which are fully as large as the total orders filled during the same four months of 1928, the company's record year, according to B. A. Perkins, vice president. "March production is about 10 per cent above the corresponding month of last year and considerably ahead of both January and February of this year," Mr. Perkins said. "As a result we are operating on an overtime basis."

* * *

PITTSBURGH COLD ROLLED STEEL CO., Verona, Pa., manufacturer of copper-coated and zinc-coated strip steel, recently completed an addition in which another furnace was installed for doubling the capacity of these products.

* * *

SWARTZ MFG. CO., Freeport, Ill., manufacturer of automotive castings, has been merged with the Stover Mfg. & Engine Co., Freeport. Carl H. Swartz, president and treasurer, becomes a member of the Stover board. Activities of the company will be transferred to the Stover plant and its lines of production will be continued.

* * *

B F. PERKINS & SONS INC., Holyoke, Mass., have acquired the business of the Vacuum Valve Cap Co., Springfield, Mass., and will increase production. Alexander Campbell, president and treasurer of the Vacuum Valve Cap Co., joins the Perkins organization in charge of production.

* * *

MOLYBDENUM CORP. OF AMERICA, Pittsburgh, has acquired the York Metal & Alloy Co., York, Pa., producer of tungsten and molybdenum chemical compounds. Earnings of the Molybdenum corporation for 1929 were $270,739 after all charges, compared with a net loss of $843 in 1928.

* * *

MARQUETTE TOOL & MFG. CO., Chicago, which recently announced the lease of a large ground area in the Clearing, Ill., industrial district, with plans for construction of a new manufacturing building there, has subleased the premises it now occupies at 4500 Cortland street, to the General Transformer Corp. of America. The plant embraces 20,000 square feet of floor space.

* * *

GREEN BAY BARKER MACHINE & TOOL WORKS, Green Bay, Wis., manufacturer of papermill machinery, with a subsidiary, the Canadian Barker Co., Sault Ste. Marie, Ont., has taken over the complete line of drilling machines formerly produced by the Rockford Machine Tool Co., Rockford, Ill. The line will be redesigned and improved. A line of all geared vertical drilling machines and electro-hydraulic vertical and horizontal drilling machines will be added. A line of assembled special drilling heads is to be offered, for supplementing present machines or changing their range of operation. In this way the company plans to give the trade engineered drilling rather than simply drilling machines.

* * *

NORTHERN CONVEYOR & MFG. CO., Janesville, Wis., which has extensive plant additions under way, is adding to its line of belt and flight conveyors, car unloaders, shaker screens and other products a new power chassis, a self-propelled unit designed to fit all its models of portable conveyors. The new power chassis will be made completely in the Janesville works, with the exception of the engine and wheels.

* * *

INLAND STEEL CO., Chicago, has distributed 16,102 shares of its common stock among employes as a result of participation in the employes' savings and profit-sharing pension fund. Almost 900 employes participated in this distribution. The plan is voluntary and more than 6000 employes, 75 per cent of the total enrollment, are taking advantage of it. Distribution is made at the end of five years participation. The plan has been in operation 11 years and this is the seventh distribution. The total number of shares distributed is 88,917, with present market value of more than $8,000,000.

Chooses New Officers

George E. Randles, president, Foote-Burt Co., was made president of the Cleveland branch of the National Metal Trades association at the annual meeting of the group in Cleveland, March 20. E. J. Stahl, vice president, Baker-Raulang Co., was elected vice president and W. C. Sayle, vice president and general manager, Cleveland Punch & Shear Works, became treasurer. The executive committee is composed of these officers and the following: P. A. Geier, chairman of board, P. A. Geier Co.; Logan Monroe, assistant treasurer, Eaton Axle & Spring Co.; J. D. Cox Jr., president, Cleveland Twist Drill Co.; and J. H. Hertner, president, Hertner Electric Co. Philip C. Molter, 933 Union Trust building, Cleveland, is secrtary of the organization.

Reports of the Illinois department of labor show that conditions in manufacturing industries of the state improved slightly during the period Jan. 15 to Feb. 15. An increase of 0.2 per cent in the number of employes and of 3.1 per cent in the weekly payrolls was reported by 1034 factories, employing 254,562 men and women.

Machinery

Gradual Upward Trend Noted as Dealers Stock for Active Second Quarter—Industrial Outlook in East Is Improved

CONTINUANCE of a slight upward movement is noted in machinery sales and inquiry and now that the "Ides of March" have been passed, dealers are looking to a revival of active buying. Volume moved during March in general was disappointing, averaging only slightly better than the February total. Some ball bearing plants in the East have returned to 40-hour schedules, in line with a general improvement in the industrial situation. Railroad inquiry is light in the Pittsburgh dstrict while in the Chicago territory several roads are buying scattered items and two large lists are pending. Export trade continues brisk, Russian interests placing 35 turret lathes with a Cleveland manufacturer, through the Amtorg Trading Corp.

New York, April 1.—Machine tool demand has improved slightly. March with most dealers and builders was more active than the previous month but the gain was not large. Moderate improvement is noted in the general industrial situation, notably in southern New England and in the upstate area. Some ball bearing plants are back to 40 hours a week. Light buying on the part of automotive, radio and airplane engine builders continues. Electrical interests are taking a few scattered tools. The navy department is inquiring for several tools including engine lathes and generating units for delivery at Brooklyn. A fair demand is noted for technical school shop equipment. A good part of the business being placed calls for high production units. The drift toward automatic and semiautomatic equipment is steady.

Delivery on standard machinery is normal in most cases. Backlogs have been reduced by some who are stocking a few standard machines. Most builders are also in a better position to handle special machines, but no great headway is noted on delivery of such types. Machine shops and metalworking plants are buying a few tools. The tendency with some buyers is to hold off until the last minute and then call for early delivery. Grinding machinery demand shows little change, although some improvement is noted with the start of the second quarter. Export trade is brisk, Amtorg Trading Corp. having a large list up for action, including grinding equipment and other diversified requirements.

Worcester, Mass., April 1.—Some evidence of the indecision and retrenchment of late 1929 still hinders the market generally and lack of outstanding demand stands in the way of any appreciable advance. Production is going along steadily, however, much for replacement and some for current needs. With first quarter over, the general spottiness which characterized business during that period is giving way in spots, although the swing back to normalcy has yet to strike the market generally. Some lines, notably the heavier types of rolling and grinding machines, have forged ahead, but others report demand good one week and poor the next.

Pittsburgh, April 1.—Machine tool awards were slightly heavier during the last week of March and served to bring the month's total to slightly better than the February volume. Activity still is slow, however, despite the fact that considerable work remains pending and inquiry is holding at a fair rate. Hesitancy continues to be noted in the placing of equipment that has been pending since the first of the year. The market still lacks large lists. Westinghouse Electric & Mfg. Co. is placing little equipment following the awarding of a fair number of tools during January and February. Railroad inquiry continues light although some equipment is expected to be placed by several roads during the second quarter. The crane market is slow both in inquiry and awards.

Chicago, April 1.—Slow sales the latter part of March and the heavy blizzard of last week have contributed to the lightest March sales volume in the machine tool market for nearly ten years. Billings were fairly heavy, and numerous inquiries are being carried over into April. Sheet metalworking equipment and light shop tools were fairly active during the week, but few sales of heavy equipment were made. One of the implement makers bought several pieces of heavy-duty equipment, including a milling machine. A local contractor will place orders within a week for about $18,000 in shop equipment for the Chicago sanitary district's sewage disposal plant at Stickney, Ill. Chicago & North Western will receive bids for a 24 x 84-inch grinder, and the Burlington will buy electric welding equipment. Northern Pacific is about to purchase a pipe machine. The St. Paul and Santa Fe lists are inactive, but orders for the major requirements of these roads may be [illegible]ring April. Chicago board of education is in the market for some light shop equipment. Allis-Chalmers Mfg. Co., Milwaukee, is buying some tools for its Monarch tractor plant at Springfield, Ill.

Cleveland, April 1.—All Fools' day finds machinery dealers and builders in this territory in no joking mood. The bright feature of a dark situation is a good volume of inquiry and although sales are few and far between, prospects for this month are good if inquiry is any indicator. A builder of turret lathes reports the sale of 35 turret lathes last week to buyers from Soviet Russia. Considerable wonder exists as to where the Russians are obtaining all the money to finance their huge purchases in this country. The above builder reports "fingers crossed" but that the money always has been forthcoming before the machinery leaves the dock at New York. The impending auction of machinery at the plant of the F. B. Stearns Co. here will put a serious crimp in local buying which might turn up at this date, accrding to some viewpoints.

Crane Orders Are Booked

Milwaukee Electric Crane & Hoist Corp., Milwaukee, which several months ago enlarged its line of electric traveling cranes to include large gantry cranes, has booked an order for two 50-ton units from the Baltimore & Ohio railroad. One will be installed at Cleveland, and the other at Washington, for handling the comparatively new type of compartment box cars. The company in the last few months has sold two 30-ton cranes of similar design to the Chicago, Milwaukee, St. Paul & Pacific railroad for general unloading at team tracks in Milwaukee and Chicago. The New York, New Haven & Hartford road has purchased a 35-ton crane, and the Boston & Albany, a 20-ton crane.

Hardware Metal Branch To Meet in May

The metal branch of the National Hardware Association of the United States will hold its nineteenth annual meeting at the Clifton House, Niagara Falls, Ontario, May 16-17. The metal branch is composed of the principal wholesale distributors and manufacturers of sheet metal products. Many important problems in connection with the distribution of sheet metals are listed for consideration. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

The April meeting of the Detroit Foundrymen's association has been postponed until May 2 at which time the group will be addressed by J. G. Pearce, director and secretary, British Cast Iron Research association, Birmingham, England.

CONSTRUCTION and ENTERPRISE

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North Atlantic

BRIDGEPORT, CONN. — Automatic Machine Co. foundry here has been leased to the General Foundry & Machine Co. which expects to employ 100 men in the next six months.

MIDDLETOWN, CONN.—Continental Casting Co. was recently incorporated as a subsidiary concern under the Welker-Hoops Mfg. Co. Frederick Axman is one of the officers, and the new company, which will have charge of all die casting under the Welker-Hoops expansion program, will have a capital of $100,000.

BINGHAM, ME.—Machine shop, storehouse and garage on Wyman development of Central Maine Power Co. were recently damaged by fire. Loss is estimated at $50,000.

JERSEY CITY, N. J.—Rudolph Ludwig, architect, 316 West Fifty-sixth street, advises that manufacturing plant for which he has plans will be erected for the Geigey Co. here. Dimensions of the building will be 50 x 100 feet, boiler unit is to be included and equipment for manufacture of dyes. (Noted March 27.)

NORTH BERGEN, N. J.—Barclay Mfg. Co., maker of metal toys, has leased a 2-story plant at 934 Hoboken street, and is said to have remodeling plans for new plant.

ROSELLE, N. J.—Zucker Sons' Co., manufacturer of buffing and polishing compounds, 627 First avenue, has awarded contract for a large plant addition.

TRENTON, N. J.—J. A. Roebling's Sons Co., manufacturer of wire, South Broad and Canal streets, recently awarded contract to J. W. Ferguson, 152 Market street, Paterson, N. J., for a wire mill to cost about $300,000.

BROOKLYN, N. Y.—Interstate Metal Co. Inc., 528 Stewart avenue, smelter and refiner, recently experienced fire damage.

NEW YORK—D. A. Skinnell Co., silver platers, 155 West Twenty-ninth street, is said to have leased floor space at 248 West Twenty-third street, for expansion purposes.

NEW YORK—Diel Watch Case Co. Inc., manufacturer, 311 Grand street, has leased space at 395 Fourth avenue and will increase capacity after moving to the new location.

TROY, N. Y.—Rensselaer Polytechnic institute, 110 Eighth street, recently closed bids for a 2 and 3-story shop and fine arts building entire cost of which is estimated at $480,000. Architect is J. M. Lawlor, 15 West Thirty-Eighth street, New York.

EAST PITTSBURGH, PA. — Westinghouse Electric & Mfg. Co. has awarded additional subcontracts in connection with central engineering laboratory building erection here. Contracts for welding and structural steel have been recently placed with Leake & Nelson and American Bridge Co., respectively. (Noted Nov. 21)

YORK, PA.—York Hoover Body Co., Linden and Belvidere streets, manufacturer, will take bids soon for a 2-story plant on Wheatfield street. Architect is W. H. Schwartz, 515 Prospect street. Cost is estimated at about $30,000.

East Central

CHICAGO—Peter J. Vollman, 5635 North Sacramento street, is said to have had plans drawn for a 3-story machine shop costing approximately $35,000.

CHICAGO—Chicago & North Western railroad, 226 West Jackson boulevard, has awarded contract for a 1-story boiler plant on North California avenue to Harrman Engineering Co., 844 Rush street.

CHICAGO—Charles E. Larson & Sons, 2645 North Keeler avenue, operating a foundry, plan a 2-story plant addition that will cost about $20,000. Plans have been drawn by A. A. Wickland & Co., architects, 205 West Wacker drive.

CHICAGO—Marquette Tool & Mfg. Co., 1900 Kilbourne avenue, has leased a site at West Sixty-fifth street and Natchez avenue, where a 1-story manufacturing plant with 30,000 square feet of floor space will be erected. Foltz & Co., 510 North Dearborn street, are architects.

EAST ST. LOUIS, ILL.—Key Boiler Equipment Co., 200 McCassland avenue, recently awarded contract to Voelkel Building Co. for erection of a 1-story, 160 x 200-foot plant building. Additional facilities will also be provided for the machine shop. Fred Key is vice president.

MOLINE, ILL.—Strombeck Becker Co., 235 Fifty-first street, maker of tool handles, awarded contract for a 2-story plant at Fourth avenue and Fifty-first street to Axel Carlson Co., 506 Fifteenth street.

ROCKFORD, ILL.—Woodward Governor Co., manufacturer of valves, proposes a 2-story plant addition. Architect is F. A. Carpenter, Brown building. Cost is estimated to be about $60,000. W. T. Woodward is secretary of the company.

ADRIAN, MICH.—Titan Electric Co., recently incorporated with $10,000 capital by W. F. Roberts, president, and W. E. Stewart, secretary, for the purpose of manufacturing and dealing in electrical motors, other electrical equipment and appliances, advises a manufacturing plant is being purchased on contract here and that new equipment and machinery will be purchased as needed.

DETROIT—Timken-Detroit Axle Co. will erect a 2-story shop and office building here on West Fort street. General contract has been awarded to C. O. Barton Co., 1900 East Jefferson street.

DETROIT—Leland Detroit Mfg. Co., contract machining specialists, 5680 Twelfth street, advise that new plant addition will be 1½-story, 56 x 138 feet. Machinery and equipment needs are indefinite as yet. (Noted March 20.)

GRAND RAPIDS, MICH.—Grand Rapids airport, care Thomas E. Walsh, superintendent, is said to contemplate improvements soon.

LUDINGTON, MICH.—Chamber of commerce is endeavoring to induce an unnamed boat building organization to locate here in a plant building formerly occupied by the Mayer Shoe Co.

WYOMING, MICH.—Pere Marquette railroad, General Motors building, Detroit, is said to be taking bids for a water treating plant to be located here.

YPSILANTI, MICH.—Ford Motor Co. and United States Pressed Steel Co. recently reached an agreement whereby the latter's plant and property here were conveyed to the Ford company for a power project to be constructed across the Huron river near here.

ATHENS, O.—Plant formerly occupied by the Athens Foundry & Mfg. Co. is being remodeled and converted into a garage, repair and storage plant by the Ohio Fuel Gas Co.

BUCYRUS, O.—Chamber of commerce is understood to be offering a minimum tonnage guarantee of castings business if some individual or firm will start a gray iron foundry here.

CINCINNATI—Board of education, care C. W. Handman, clerk, 511 West Court street, will close bids April 14 for the mechanical branches of a 3-story school building at Burns and Staebler streets. Samuel Hannaford & Son, Dixie Terminal building, are architects.

CLEVELAND — Thompson Products Inc., Clarkwood road, advises that construction will

begin at once on a 1-story plant addition for the manufacture on a direct line of automobile and airplane valves. Contract has been let to the De Hamel Co., Plymouth building, for the plant which will be 125 x 150 feet and will contain machinery for performing forging, screw, grinding and special operations.

COLUMBUS, O.—Okey Mfg. Co., manufacturer of gas engines, North Water street, recently closed bids on a 61 x 115-foot plant building on Dennison avenue.

COLUMBUS, O.—Ralston Steel Car Co., manufacturer, 3500 East Fifth street, has private plans for a general contract to be awarded for the erection of a plant addition to cover sand-blasting division.

COLUMBUS, O.—Automatic Reclosing Circuit Breaker Co., manufacturer of electrical apparatus, 1304 Indianola avenue, has awarded a general contract for a 1-story, 60 x 150-foot plant addition. Work has commenced under F. L. Matthaes, contractor, 427 East Dunedin road.

DAYTON, O.—Green & Green Co., Fluhart and Cincinnati streets, has awarded contract for a 1-story, 50 x 50-foot boiler house to Huffman Realty Co., Third National Bank building.

DELTA, O.—Village has completed plans through H. P. Jones Co., engineer, National Bank building, Toledo O., for a filtration plant said to cost $120,000. Bids will be taken soon.

DOVER, O.—Greer Steel Co. recently let contract to Heiner Structural Steel Co., Canton, O., for a new power house that will cost about $35,000 and will more than double the capacity of the present power plant.

HAMILTON, O.—Arcade Motor Co. will use a new 1-story building being erected at 327 Court street for servicing cars. Antenen Engineering & Construction Co. has been awarded the contract. Building will be completed by the middle of April.

LIMA, O.—Gorrell Carnes Foundry Co. was slightly damaged by fire recently.

MIDDLETOWN, O.—American Rolling Mill Co. advises through Calvin Verity, vice president, that roll shop planned will be 40 x 60 feet and will house roll-grinding equipment. (Noted March 20.)

NEWARK, O.—City council recently passed legislation assuring establishment of a government-owned emergency airport here which will be equipped and maintained soon.

POMEROY, O.—Rig & Reel Foundry & Machine Shop plant here may be reopened and it is reported that negotiations are under way to have car wheels manufactured here.

FAYETTEVILLE, W. VA.—Rinehart Dennis, Charlottesville, Va., has been awarded the contract for a large power dam project at Hawk's Nest, W. Va., near here, for the Union Carbide & Carbon Co. Project is estimated to cost $4,500,000.

EAU CLAIRE, WIS.—Kappus Litchfield Motor Co., 320 Main street, has plans through A. W. Bayer, architect, Kelley building, for a garage and machine shop addition, 52 x 125 feet, and to cost about $30,000.

LA CROSSE, WIS.—Auto-Motive Foundry Co., Rose and Gillette streets, has plans recently approved by state engineer for a machine shop addition to cost about $35,000.

MADISON, WIS.—Fuller & Johnson Mfg. Co., maker of gasoline and kerosene engines, advises that contract for plant alterations at 1343 East Washington street, has been let to J. H. Findorff & Son here. (Noted March 20.)

MILWAUKEE—Milwaukee Die Casting Co., 291 Fourth street, advises that although company has purchased a site 380 x 470 feet on Holton street in the north side industrial district, no plant expansion is contemplated at the present. H. F. Schroeder is vice president of the company. (Noted Dec. 5.)

MILWAUKEE—Shafrin Schmitz Co., scrap metal dealer and refiner, will build a plant addition at 482 Thirty-first street that will cost about $35,000. General contract has been let to Byrne Bros. Co., 3100 Burleigh street.

MILWAUKEE—International Harvester Co., 784 Park street, is remodeling shop building here at a cost of $35,000 and is also making preliminary plans for the erection of a large plant addition later in the year. Chief engineer is C. P. Rasmussen.

NEW HOLSTEIN, WIS.—Snowflyer Co., manufacturer of deep-snow attachments for tractors and automobiles, contemplates erection of a large plant addition to be ready about July. A. L. Langenfeld is president. Recently a part of the present plant was damaged by fire.

NEW LONDON, WIS.—Little Wolf Power Co., care Dr. W. H. Finney, president, Clintonville, Wis., has been granted a state permit and will award contracts at once for construction of a 22 x 54-foot power house with equipment. L. A. DeGuere, Wisconsin Rapids, Wis., is engineer.

RACINE, WIS.—South Side Planing Mill, 1234 Thirteenth street, will build a 2-story, 48 x 75-foot addition. Equipment was recently purchased.

West Central

CEDAR FALLS, IOWA—Holdfast Chain Co., manufacturer of automobile chains, Manchester, Iowa, will erect a 1-story, 36 x 60-foot plant here early this spring and transfer its activities to this city.

DAVENPORT, IOWA.—Davenport industrial commission, care H. B. Petznick, is planning manufacture of an automatic train-coupling device. A number of local men are interested, and production of the device having been started preliminarily in the shops of the General Metals Products Co. now awaits grant of patent before manufacture is begun on a larger scale.

EAST DES MOINES, IOWA—Chicago, Rock Island & Pacific railroad, care F. D. Reed, vice president and general purchasing agent, Chicago, plans expenditure of a sum estimated to be $250,000 at terminal here. Among units to be constructed will be a power plant addition, machine shop, car repair shop and cinder handling plant.

OELWEIN, IOWA—Great Western railroad, care W. R. Petrikin, president, Sugar building, Denver, Colo., suffered fire damage to shops and oil storage buildings here recently.

DULUTH—Midwest Motor Specialty Co., jobber of piston rings and hardware, 403 East Superior street, is said to plan an expansion program.

DULUTH—International Products Corp., recently incorporated with $500,000 capital, will manufacture iron and steel railroad ties and rail connections made under patents. A plant will be built either here or in Superior, Wis., if conditions prove suitable. J. B. Arnold Jr., 731 East First street, is one of the company's officers.

MINNEAPOLIS—William Bros. Boiler & Mfg. Co., Nicolette island, plans a power plant unit which with equipment will cost a sum estimated to be $100,000. Unit is to be erected at Tenth and East Hennepin avenues.

ST. PAUL—Marquette Mfg. Co., 218 Wabasha street, manufacturer of automobile tools, suffered a damage to plant recently by fire.

KANSAS CITY, MO.—Whitaker Battery Supply Co., manufacturer of batteries and battery supplies, 2463 Charlotte street, has plans for erection of a plant building at Fifteenth street and Agnes avenue to have a floor space of 35,000 square feet.

MARSHALL, MO. — Missouri Valley college contemplates erection of a science hall to cost about $125,000. Architect has not yet been selected. G. H. Mack is president.

SIKESTON, MO.—Village will hold an election April 1 for appropriation of $150,000 bond issue, proceeds of which will be used for construction of an electric light and power plant.

ST. LOUIS—W. N. Brown, steel erector, 5100 Farlin avenue, will build a 2-story steel plant at 1717 North Twenty-fifth street to cost about $50,000.

ST. LOUIS—Mesker Bros. Iron Co., 424 South Seventh street, will erect a plant addition for the manufacture of wrought iron window frames. B. T. Mesker is president.

ST. LOUIS—Board of education, 911 Locust street, plans manual training shops in connection with a vocational school at Bell and Channing streets, bids for the first unit of which will be received until April 2.

FARGO, N. D.—Plant of Hoiland Mfg. Co., maker of grain cleaners, 820 Twenty-seventh street, was recently damaged by fire.

MINOT, N. D.—J. I. Case Threshing Machine Co., 700 State street, Racine, Wis., contemplates building a warehouse, 62 x 380 feet, here this spring and some bids have been received.

Western States

BERKELEY, CALIF.—B. F. Sturtevant Co., 2530 Sixth street, manufacturer of ventilating devices, announced recently through the local chamber of commerce that $1,000,000 will be expended on plant expansion here. The first unit, to cost approximately $100,000, at Eighth and Camelia streets, will contain 50,000 square feet of floor space. C. C. Hardy is manager here.

LOS ANGELES—Electrical Products Inc., manufacturer of electrical specialties, 1128 Venice boulevard, has awarded contract for a 45 x

93-foot plant addition estimated to cost with equipment approximately $30,000.

LOS ANGELES—Price Pfister Brass Mfg. Co. Inc., 3011 Humboldt street, has awarded general contract for a 1-story addition costing with equipment about $20,000. Building will be 60 x 80 feet.

OAKLAND, CALIF.—Magnavox Co., 2725 East Fourteenth street, manufacturer of sound amplifiers, loud speakers and telephones, is reported considering erection of a plant at one of several eastern factory sites. Richard A. O'Connor is president.

SAN LEANDRO, CALIF.—United Engine & Machine Co., Fresno, Calif., recently began construction of a new manufacturing plant here on a 3-acre site on Preda street, west of the Caterpillar Tractor Co. plant. United Engine & Machine Co. is a manufacturer of pistons for automotive engines.

GREAT FALLS, MONT.—City, care W. H. Harrison, clerk, plans approval by voters to be held April 7 for construction of central heating plant estimated to cost $100,000. C. P. Wells is city engineer.

McMINNVILLE, OREG.—Local light plant will install a new diesel engine electric power unit for operation by Sept. 1.

SALT LAKE CITY, UTAH.—Buchner Bros. Inc., 640 Wilmington avenue, plans an addition to their artificial stone manufacturing plant on site.

SEATTLE—Gypsum Products Corp., 6851 East Marginal way, is making plant alterations to permit installation of additional machinery.

SEATTLE—Pacific Coast Steel Co. is having Warrack Construction Co. build a 28 x 280-foot shed for the open-hearth department.

SEATTLE—Puget Sound Power & Light Co. will erect a substation costing $10,000 at 4355 East Fifty-fifth street.

SEATTLE—Graybar Electric Co., 84 Marion street, has awarded contract to Bailey Construction Co. for erection of a 2-story building at King and Occidental streets.

SEATTLE—Broderick & Bascom Rope Co. advises through H. W. Wilker that manufacturing plant and office building will be 80 x 230 feet, and that some subcontracts have been let. (Noted March 20.)

SEATTLE—American Can Co., Vine and Elliott streets, has awarded contract for a 3-story plant to A. W. Quist & Co., contractors, Hoge building. Machinery and equipment are to be installed, the project costing in entirety over $1,250,000.

WENATCHEE, WASH.—Wenatchee Brick & Tile Co. has been issued a permit for a 50 x 120-foot machine shop and garage to cost about $11,000.

GREEN RIVER, WYO.—Green River Waterworks Co. has private plans for plant addition to local waterworks and installation of modern equipment, entire project to cost about $55,000.

story, 65 x 180-foot plant on Grand avenue here estimated to cost $40,000. Contract has been awarded.

LULING, TEX.—Airport committee of chamber of commerce has obtained 100-acre site off San Antonio highway for construction of an airport.

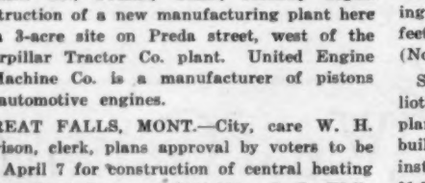
PLAINVIEW, TEX.—T. B. Carter is said to be preparing to manufacture tractor guides and is asking for data on necessary steel parts.

UVALDE, TEX.—McMullen & Glass, operating a machine shop at Orange, Tex., are installing equipment for plant of Uvalde Machine & Welding Works here.

PORTSMOUTH, VA.—Seaboard Air Line railroad, care W. D. Faucette, chief engineer, Savannah, Ga., plans installing equipment in shops here involving an expenditure of about $60,000.

RICHMOND, VA.—American Can Co., manufacturer of containers and sheet metal goods, 120 Broadway, New York, will construct a plant to cost about $1,000,000, employing twice the number now at plant here. Land was recently acquired and closing of the deal marked the end of negotiations last over a year. Prospective building plans are indefinite.

ST. CHARLES, VA.—Virginia Iron, Coal & Coke Co., Roanoke, Va., recently began construction of a steel tipple to cost about $70,000 at Monarch camp, near here.



Southern States

UNIVERSITY, ALA.—University of Alabama is reported planning an addition to its school of chemistry and metallurgy.

PINE BLUFF, ARK.—Pine Bluff Metal Corp., recently incorporated by A. H. Soltz for the purpose of metal reclamation, is contemplating an establishment with the latest type of dismantling machinery and equipment.

ST. PETERSBURG—Seaboard Air Line railway, care W. D. Faucette, chief engineer, Savannah, Ga., let contract to Claussen & Fellows, Power & Light building, for a 1-story power house here.

AMERICUS, GA.—Farman Aircraft Corp., care Harrison R. Tucker, vice president, 1425 South Quaker street, Tulsa, Okla., will begin manufacturing operations here temporarily in a warehouse until a modern plant is erected later for the production of airplanes.

LUDLOW, KY.—Board of education, care H. C. Dunham, clerk, recently completed plans for a 3-story high school building to be erected on West Elm street, and to include laboratories and a manual training shop. F. J. Porter, 1714 North High street, Columbus, O., is architect.

NEWPORT, KY.—Newport Rolling Mill, Lowell and West Sixth streets, has been granted a building permit for a plant addition. General Iron Works has been awarded the contract.

OKLAHOMA CITY, OKLA.—Caravan Oil Co. has been sold to Victor H. Smith, Hunt building, Tulsa, Okla., and improvements will be made to bring capacity to 8000 barrels a day. A. M. Smith is general superintendent.

OKLAHOMA CITY, OKLA.—American Tank Co., 1520 East Seventh street, will erect a 140 x 260-foot all-welded plant on Westwood boulevard to be in operation by June 1. Company is a subsidiary of Black, Sivalls & Bryson, Bartlesville, Okla.

OKMULGEE, OKLA.—Barnsdall Refining Co. has awarded contract for installation of a new Cross A model cracking unit to M. W. Kellogg Co., 7 Dey street, New York. Enlargement of boiler house is planned. G. T. Granger is plant manager.

TULSA, OKLA.—Pittsburgh Equitable Meter Co., 400 Lexington avenue, Homewood, Pittsburgh, has acquired additional ground adjoining its branch assembly plant on Sand Springs road. A. J. Kerr, 834 Kennedy building, Pittsburgh, is southwestern manager.

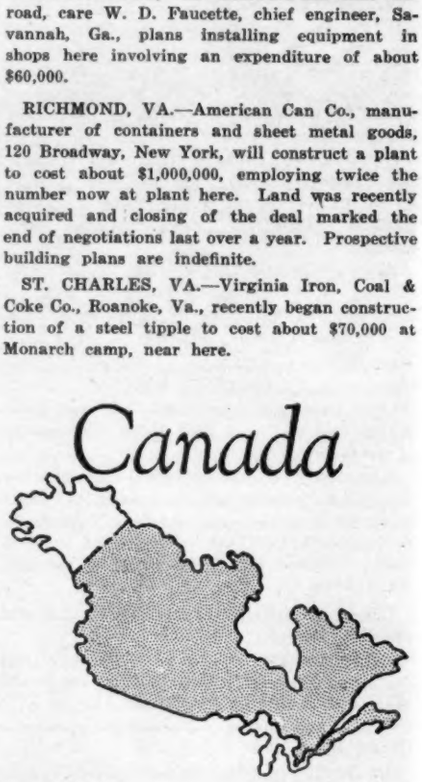
CHATTANOOGA, TENN.—Cole Mfg. Co., maker of stoves and radiators, 3218 South Western avenue, Chicago, and Southern Stove Works, Evansville, Ind., are said to be considering sites for a large stove foundry here.

MEMPHIS, TENN.—Kelsey Wheel Co. Inc., care R. E. Strich, secretary, will soon start work on a 1-story plant addition for manufacturing wheels. H. B. Hunter, Union Planters' Bank building, is engineer.

CORSICANA, TEX.—Corsicana Grader & Machine Co. has made preliminary preparations to erect a warehouse adjoining the main plant.

GALVESTON, TEX.—J. A. Wetmore, supervising architect, Treasury department, Washington, will open bids May 2 for a 3-story hospital here to include heating plant.

HOUSTON, TEX.—Midwest Piping & Supply Co., manufacturer of steel pipes, 1450 South Second street, St. Louis, will construct a 1-



Canada

VANCOUVER, B. C.—Canadian Warren Pink Ltd., St. Catherines, Ont., has purchased property on Fourth avenue west, here, where a manufacturing plant will be erected for the production of axes and other lumbermen's tools and accessories.

WINNIPEG, MAN.—McDonald Bros. Aircraft Ltd., originally McDonald Bros. Sheet & Metal Roofing Co., and which was recently reincorporated, proposes to build a $30,000 plant addition for the manufacture of parts for airplane service stations. Grant McDonald is president.

BRADFORD, ONT.—Local taxpayers will be asked to vote to provide for the installation of a waterworks plant here to cost $50,000. Engineers are James, Proctor & Redfern, 36 Toronto street, Toronto, Ont.

FORT ERIE, ONT.—Fleet Aircraft Co. of Canada, subsidiary of the Consolidated Aircraft Co., 2050 Elmwood avenue, Buffalo, will erect and operate a branch here to be in production in the early spring.

LUCKNOW, ONT.—James Agnew, clerk, advises that appropriation by-law will be submitted April 7 to voters for expenditure of approximately $65,000 for alteration to waterworks plant. Engineers of the project are Gore, Nasmith & Storrie, Confederation Life building.

PETERBOROUGH, ONT.—Peterborough Tool Works Ltd. proposes to start work immediately

on a new tool and die-making plant on King street. Building will be 30 x 50 feet. Advice states that contract has not been let and machinery and equipment needs have not been figured.

SIMCOE, ONT.—Council, care G. R. Marston, engineer, is said to propose installation of pumps at municipal disposal plant.

ST. CATHERINE'S, ONT.—W. S. Tyler Co., 3615 Superior avenue, Cleveland, manufacturer of ornamental iron and bronze work, has plans for a plant here that is expected to cost about $150,000. G. S. Rider Co., Marshall building, Cleveland, is architect.

ST. THOMAS, ONT.—Water commission, care W. C. Miller, engineer, proposes purchase of filtration machinery costing about $20,000.

TORONTO, ONT.—J. F. Raw Co. Ltd., 56 Adelaide street, maker of surveying instruments, will award contract for a 5-story blueprinting plant at Richmond and Church streets. Architect is Murray Brown, Confederation Life building.

WALKERVILLE, ONT.—General Motors Corp. of Canada is expanding the motor coach department of its business here and will undertake the manufacture of a full line of coaches ranging from 16 to 35 passenger capacity.

MONTREAL, QUE.—Southern Canada Power Co., 355 St. James street west, has made application to the Quebec Public Service commission for approval of plans and approval to carry out its proposed $6,000,000 power development project at Spencer Rapids on the St. Francois river, from which 50,000 horsepower will be developed.

PLESSISVILLE, QUE.—Municipal council contemplates a pumping unit in the waterworks plant here. C. C. Lessard, 32 Des Allies boulevard, Quebec, Que., is engineer.

PRINCE ALBERT, SASK.—Grosser & Glass Ltd., Kerrobert, Sask., has purchased a site here and proposes to start work immediately on a 50 x 100-foot machine shop.

Recent Incorporations

AURORA, ILL.—Acme Body Mfg. Co. has been incorporated with $25,000 preferred and $6250 common stock by National Contract Purchase Corp., 100 West Monroe street, to deal in all kinds of automobile bodies.

CHICAGO—Adabor Construction Co. has been incorporated with $20,000 capital by Milton W. Weiss, 100 North La Salle street, to engage in general construction work.

CHICAGO — Kayness Corp. has been incorporated with $10,000 capital by Sims, Godman & Stransky, Continental Illinois Bank building, to deal in iron, steel and other metals.

HAMMOND, IND.—Calumet Electric Casteel Co. has been incorporated with 2000 no par shares by B. A. Zikmund and George A. Krause, to manufacture steel castings.

INDIANAPOLIS—Indianapolis Arts Metal Mfg. Co. has been incorporated by Gustav Reith, Raymond avenue, to manufacture and assemble wrought iron ornaments.

INDIANAPOLIS—Sono Equipment Corp. has been incorporated with $50,000 capital stock by Russell W. Langsenkamp and Chester L. Zechiel, 707 Peoples Bank building, to engage in the manufacture of all kinds of devices, to operate and promote the sale of any manufactured products.

HUNTINGTON, W. VA.—Kilgore Metal Products Co. has been incorporated with $5000 capital by A. W. Werninger and G. M. Mossman.

BOSTON—DeMar Co. has been incorporated with $20,000 capital by Robert M. DeMar, 43 Union street, to manufacture and deal in window rollers, shades and other accessories.

BOSTON—Beacon Hosiery Latcher Co. has been incorporated with 5000 no par shares by Clarence Tichell, attorney, 85 Devon street, to manufacture and deal in hosiery repair needles.

LAWRENCE, MASS.—Dillon Boat Works Inc. has been incorporated with $50,000 capital by Irving W. Dillon, to design, construct and deal in all kinds of water craft.

DETROIT—Home Machine Co. has been incorporated with 5000 no par shares by Stewart R. Boyer, 2000 Buhl building, to engage in general manufacturing, selling and retailing of machinery.

DETROIT—Automobile Transport Corp. has been incorporated with $200,000 capital by Edwin M. Mulock, 8-268 General Motors building, to manufacture and deal in tractors, trailers and equipment.

DETROIT—James D. Anderson Co. has been incorporated with $10,000 capital by James D. Anderson, 465 York street, to manufacture and deal in steel and iron work.

DETROIT—L.G.B. Inc. has been incorporated with $7500 capital by Irvin A. Gies, 300 Phillips avenue, to manufacture and sell special mechanical devices and equipment.

DETROIT—Modern Body Shop & School has been incorporated with $1000 capital to engage in general automobile business by Leo C. Caldwell, 847 Howard avenue.

DETROIT—Detroit Power Shovel Co. has been incorporated with $100,000 capital by Walter E. Bernhard, 8751 West Grand street, to design, manufacture and sell power shovels and hydraulic clutches.

LANSING, MICH.—Paul Threadless Bolt Co. has been incorporated with $25,000 capital by Stephen Paul, 113 South Larch street, to engage in general manufacturing, a general machine shop business, and deal in government patents.

New Trade Publications

WELDERS—Thompson-Gibb Electric Welding Co., Lynn, Mass., and Bay City, Mich., has issued a leaflet covering its spot, seam, butt and special welders and welding presses.

LUBRICATION—Alemite Lubricator Co., Chicago, calls attention in a current bulletin to its method of industrial lubrication, to conserve power otherwise lost through friction.

BUCKETS—Hayward Co., 50 Church street, New York, has issued bulletins on its digging clamshell buckets and electric-motored buckets. Both are illustrated to show varied applications in industry.

INGOT IRON—American Rolling Mill Co., Middletown, O., has prepared a booklet on savings in the oil industry made possible by use of its ingot iron to resist corrosion. Reference data are included.

PULVERIZING MILLS—Fuller Lehigh Co., Fullerton, Pa., has published a circular on its pulverizing mills. It presents economic and mechanical advantages of its mills, of air and screen separation types.

SHOP TOOLING—Cramp Mfg. Corp., Chicago, in a booklet largely devoted to illustrations, presents its service in tooling problems for metalworking shops. Jigs and dies, as well as tools, are part of its product.

INDUSTRIAL BUILDINGS—Blaw-Knox Co., Pittsburgh, presents its claims for its industrial buildings in a current bulletin and in another shows forged grating for armoring factory floors for long wear.

TURBINES—Murray Iron Works Co., Burlington, Iowa, has issued bulletins on its turbines for generator units, for pump drives and its turbo-gear units. Illustrations and text combine to present the subject completely.

TRACTORS—Caterpillar tractors for many uses all over the world, even as power plants for years after they are laid by from their usual tasks, form the subject of a picture pamphlet by the Caterpillar Tractor Co., San Leandro, Calif.

SMALL TOOLS—Brown & Sharpe Mfg. Co., Providence, R. I., has issued a booklet of new small tools to help do better work faster. It describes products added during the past few months, including machinsists' tools, cutters, screw machine tools and arbors.

PLASTIC REFRACTORIES—Quigley Furnace Specialties Co. Inc., New York, calls attention in a current bulletin to the use of its plastic refractory material in the foundry. Applications include brickwork, ladle linings, daubing and furnace linings.

INDUCTION MOTORS—Reliance Electric & Engineering Co., Cleveland, has issued a bulletin on one type of its induction motors, with ball bearings, for two and three-phase alternating-current circuits. Illustrations show method of fabrication and assembly. Tables of ratings are also given.

KNIVES AND SHEARS—Heppenstall Co., Pittsburgh, successor to the Heppenstall Forge & Knife Co., traces in a current booklet the history of the company, which has served three generations. A historical sketch is followed by recital of the industries the company serves, its metallurgical service and facilities and description of its products. Copious illustrations supplement the text.

ELECTRIC FURNACES—Ajax Electrothermic Corp., division of the Ajax Metal Co., Trenton, N. J., has issued a bulletin on its motor-generator-type furnaces and equipment. Development of this type of furnace is sketched, the principle of operation explained and the field of application stated. Advantages of this type for certain melting problems are explained and details of construction are given.

MILLERS AND GRINDERS—Cincinnati Milling Machine Co. and Cincinnati Grinders Inc., Cincinnati, have co-operated in publishing a catalog covering the standard line of machine tools produced by both companies. Illustrations, descriptions and specifications are given of knee and column-type, automatic and hydromatic millers and cutter grinders, centerless and center type grinders. French and German dimensions and descriptions also are given.

Pipe and Tube Prices—Plate Extras

Steel Pipe

(Base price $200 per ton)

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	28	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3¼ to 3¾-inch	54 off
4-inch	57 off
4½ to 6-inch	46 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	61 off
1¼ and 1½-inch	53 off
1¾-inch	37 off
2 and 2¼-inch	32 off
2½ and 2¾-inch	40 off
3-inch	46 off
3¼ and 3½-inch	48 off
4-inch	51 off
4½, 5 and 6-inch	40 off

SEAMLESS HOT ROLLED

1¾-inch	37 off
2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3¼ and 3½-inch	54 off
4-inch	57 off
4½, 5 and 6-inch	46 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....55 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Net price per foot f.o.b. Pittsburgh Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inch long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot to but not including 7.65 pounds square foot.... .20c
Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, class A-B..	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts (Including straight taper plates)
Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)
Additional extra ..... .20c